# PRACTICE TEST 4

# ANSWER SHEET

Last Name: _____ First Name: _____

Date: _____ Testing Location: _____

## Administering the Test

- **Remove this answer sheet** from the book and use it to record your answers to this test.
- This test will require **2 hours and 10 minutes** to complete. Take this test in one sitting.
- Use a stopwatch to time yourself on each section. The time limit for each section is written clearly at the beginning of each section. The first four sections are 25 minutes long, and the last section is 30 minutes long.
- Each response must **completely fill the oval. Erase all stray marks completely**, or they may be interpreted as responses.
- **You must stop ALL work on a section when time is called**.
- If you finish a section before the time has elapsed, check your work on that section. **You may NOT move on to the next section until time is called**.
- Do not waste time on questions that seem too difficult for you.
- Use the test book for scratchwork, but you will only receive credit for answers that are marked on the answer sheets.

## Scoring the Test

- Your scaled score, which will be determined from a conversion table, is based on your raw score for each section.
- You will receive one point toward your raw score for every correct answer.
- You will receive no points toward your raw score for an omitted question.
- For each wrong answer on a multiple-choice question, your raw score will be reduced by 1/4 point. For each wrong answer on a numerical "grid-in" question (Section 4, questions 29–38), your raw score will receive no deduction.

**SECTION 1**
Critical Reading
25 minutes

| | | |
|---|---|---|
| 1. (A) (B) (C) (D) (E) | 9. (A) (B) (C) (D) (E) | 17. (A) (B) (C) (D) (E) |
| 2. (A) (B) (C) (D) (E) | 10. (A) (B) (C) (D) (E) | 18. (A) (B) (C) (D) (E) |
| 3. (A) (B) (C) (D) (E) | 11. (A) (B) (C) (D) (E) | 19. (A) (B) (C) (D) (E) |
| 4. (A) (B) (C) (D) (E) | 12. (A) (B) (C) (D) (E) | 20. (A) (B) (C) (D) (E) |
| 5. (A) (B) (C) (D) (E) | 13. (A) (B) (C) (D) (E) | 21. (A) (B) (C) (D) (E) |
| 6. (A) (B) (C) (D) (E) | 14. (A) (B) (C) (D) (E) | 22. (A) (B) (C) (D) (E) |
| 7. (A) (B) (C) (D) (E) | 15. (A) (B) (C) (D) (E) | 23. (A) (B) (C) (D) (E) |
| 8. (A) (B) (C) (D) (E) | 16. (A) (B) (C) (D) (E) | 24. (A) (B) (C) (D) (E) |

Time: 25 minutes

Start: _____

Stop: _____

**SECTION 2**
Math
25 minutes

| | | |
|---|---|---|
| 1. (A) (B) (C) (D) (E) | 9. (A) (B) (C) (D) (E) | 17. (A) (B) (C) (D) (E) |
| 2. (A) (B) (C) (D) (E) | 10. (A) (B) (C) (D) (E) | 18. (A) (B) (C) (D) (E) |
| 3. (A) (B) (C) (D) (E) | 11. (A) (B) (C) (D) (E) | 19. (A) (B) (C) (D) (E) |
| 4. (A) (B) (C) (D) (E) | 12. (A) (B) (C) (D) (E) | 20. (A) (B) (C) (D) (E) |
| 5. (A) (B) (C) (D) (E) | 13. (A) (B) (C) (D) (E) | |
| 6. (A) (B) (C) (D) (E) | 14. (A) (B) (C) (D) (E) | |
| 7. (A) (B) (C) (D) (E) | 15. (A) (B) (C) (D) (E) | |
| 8. (A) (B) (C) (D) (E) | 16. (A) (B) (C) (D) (E) | |

Time: 25 minutes

Start: _____

Stop: _____

**SECTION 3**
Critical Reading
25 minutes

| | | |
|---|---|---|
| 25. (A) (B) (C) (D) (E) | 33. (A) (B) (C) (D) (E) | 41. (A) (B) (C) (D) (E) |
| 26. (A) (B) (C) (D) (E) | 34. (A) (B) (C) (D) (E) | 42. (A) (B) (C) (D) (E) |
| 27. (A) (B) (C) (D) (E) | 35. (A) (B) (C) (D) (E) | 43. (A) (B) (C) (D) (E) |
| 28. (A) (B) (C) (D) (E) | 36. (A) (B) (C) (D) (E) | 44. (A) (B) (C) (D) (E) |
| 29. (A) (B) (C) (D) (E) | 37. (A) (B) (C) (D) (E) | 45. (A) (B) (C) (D) (E) |
| 30. (A) (B) (C) (D) (E) | 38. (A) (B) (C) (D) (E) | 46. (A) (B) (C) (D) (E) |
| 31. (A) (B) (C) (D) (E) | 39. (A) (B) (C) (D) (E) | 47. (A) (B) (C) (D) (E) |
| 32. (A) (B) (C) (D) (E) | 40. (A) (B) (C) (D) (E) | 48. (A) (B) (C) (D) (E) |

Time: 25 minutes

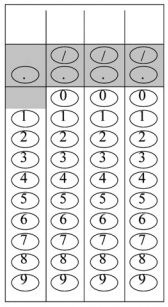
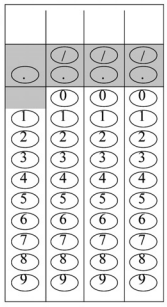
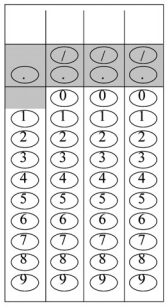
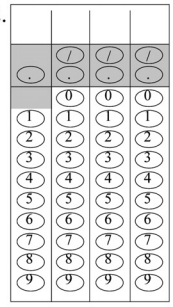
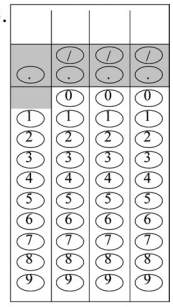
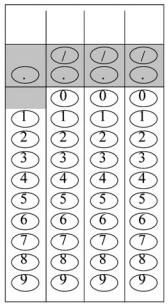
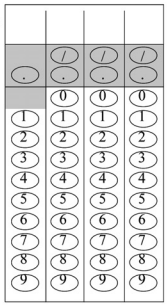
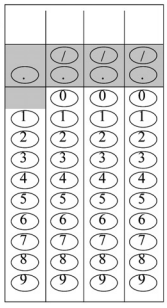
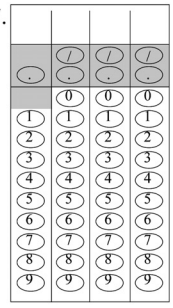
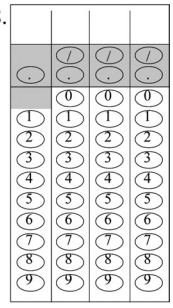
Start: _____

Stop: _____

**SECTION 4**
Math
25 minutes

21. (A) (B) (C) (D) (E)
22. (A) (B) (C) (D) (E)
23. (A) (B) (C) (D) (E)
24. (A) (B) (C) (D) (E)
25. (A) (B) (C) (D) (E)
26. (A) (B) (C) (D) (E)
27. (A) (B) (C) (D) (E)
28. (A) (B) (C) (D) (E)

Time: 25 minutes
Start: _____
Stop: _____

29. 
30. 
31. 
32. 
33. 
34. 
35. 
36. 
37. 
38. 

**SECTION 5**
Writing Skills
30 minutes

1. (A) (B) (C) (D) (E)
2. (A) (B) (C) (D) (E)
3. (A) (B) (C) (D) (E)
4. (A) (B) (C) (D) (E)
5. (A) (B) (C) (D) (E)
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8. (A) (B) (C) (D) (E)
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15. (A) (B) (C) (D) (E)
16. (A) (B) (C) (D) (E)
17. (A) (B) (C) (D) (E)
18. (A) (B) (C) (D) (E)
19. (A) (B) (C) (D) (E)
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31. (A) (B) (C) (D) (E)
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36. (A) (B) (C) (D) (E)
37. (A) (B) (C) (D) (E)
38. (A) (B) (C) (D) (E)
39. (A) (B) (C) (D) (E)

Time: 30 minutes
Start: _____
Stop: _____

# Section 1

**Time—25 minutes**
**24 Questions (1–24)**



Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Medieval kingdoms did not become constitutional republics overnight; on the contrary, the change was ------.

(A) unpopular
(B) unexpected
(C) advantageous
(D) sufficient
(E) gradual

*Correct response: (E)*

**1** Bob Ross's instructional television show, *The Joy of Painting*, was an enormous success because of his ------ personality; viewers were ------ by his mantra that there were "no mistakes, only happy accidents."

(A) inspirational . . dispirited
(B) boorish . . enthused
(C) flippant . . agitated
(D) motivating . . inspired
(E) civilized . . expectant

**2** Yorkshire Terriers are an ------ and mischievous breed known for their resistance to authority and their love of ------.

(A) agile . . trouble
(B) obstinate . . misbehavior
(C) inert . . infamy
(D) adamant . . notoriety
(E) indominable . . scrutiny

**3** Even at a young age, when she started her own lemonade business, the former CEO of Blanden Pharmaceuticals showed the ------ and ------ that has brought her business success.

(A) industriousness . . lassitude
(B) tenacity . . lethargy
(C) contempt . . pertinacity
(D) diligence . . initiative
(E) swagger . . agility

**4** Amelia's recent tightfisted behavior belies her usual ------; for as long as I have known her, she has otherwise always been willing to give to those less fortunate.

(A) maliciousness
(B) munificence
(C) animosity
(D) clairvoyance
(E) mirth

**5** Because Truman had always been ------, he did not mind the isolation that came from being ------ by his peers in high school.

(A) a pariah . . . lionized
(B) a mendicant . . . exiled
(C) a hermit . . . ostracized
(D) a miscreant . . . censured
(E) an egotist . . . appreciated

GO ON TO THE NEXT PAGE ▸▸▸

I

The passages below are followed by questions based on their content or the relationship between the passages. Answer the questions on the basis of what is stated or implied in the passages or the introductory material preceding them.

## Questions 6–9 are based on the following passages.

*The following passages discuss the philosophy behind the French Revolution, which occurred in the late eighteenth century.*

### Passage 1

Line Social order, the inequalities of class, the domination by an aristocracy were no longer to be accepted as divinely ordained and unchangeable truths. Science was to be a critical instrument in the pursuit of truth, a truth that would liberate people from the dark myths of the divine right of kings and religious dogma and lead them towards a progressively democratic order based on the newly discovered truths about the "rights of man." Rousseau[1] wrote of the inequalities between people caused by social institutions and practices, and noted that in the "natural" state the differences between people were far less acute than in society. It is society, he argued, that distorts the basic goodness, decency and equality that are the natural condition of mankind.

### Passage 2

Out of the revolutionary upheaval in France there emerged a long period of instability, of counter-revolution, of attempts at monarchical restoration, and Napoleonic imperial domination. Rather than the steady progress towards a free and democratic society in which a human reason would order the affairs of politics and society, there followed a period of bloodshed, division, domination, and reaction. The Enlightenment *philosophes* were seen by their critics as naive mythmakers who substituted their own *a priori* ideals of progress, reason, and freedom for the earlier mythologies. Far from undertaking a scientific examination of society and the human condition, the *philosophes* had actually engaged in a form of moral philosophizing.

[1]Jean-Jacques Rousseau, an eighteenth-century French philosophe.

First paragraph: *Readings in Social Theory: The Classic Tradition to Post-Modernism*, James Farganis. © 1993 The McGraw-Hill Companies.

Second paragraph: *http://www.sfmuseum.org/hist5/foremoms.html*

**6** Unlike Passage 1, Passage 2 suggests that the ideals of the French Revolution were

(A) well received in other countries
(B) unrealized
(C) disputed by the philosophes
(D) a stabilizing social force
(E) implemented by Napoleon

**7** According to Passage 1, Rousseau believed that the "natural" state is one in which people

(A) do not have access to scientific means of investigation
(B) are in constant competition with one another
(C) willingly fulfill hierarchical social roles
(D) are kind to each other
(E) have no proper rights

**8** The "critics" mentioned in line 29 most likely shared the perspective of

(A) the author of Passage 1
(B) Rousseau
(C) the author of Passage 2
(D) the opponents of Napoleon
(E) modern philosophers

**9** The final sentence of Passage 2 implies that Rousseau

(A) was ignorant of history
(B) did not focus on questions of morality
(C) did not acknowledge the "rights of man"
(D) was not rigorously scientific in his analysis
(E) was more concerned with the past than with the present

The passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in the passage or the introductory material preceding it.

## Questions 10–15 are based on the following passage.

*The following passage discusses the experience of literature in different forms.*

Line The common reader is "safe" with a story in a book, or with a poem, because when the story or the poem threatens to become too vivid, it can be regarded as "cold print," and kept comfortably suppressed and remote. Such a reader is proof against the full effect of literature because something is always reassuring him that after all it is only a story. But when literature is presented to this same reader, not on the page between the covers of a book, but on the stage before his very ears and eyes in the form of a play, he falls easy victim to the illusion of reality. The characters are living and breathing; the settings are real. A moment's reflection will dispel the illusion as effectively as the reflection that the novel is only a story or that the poem is just something made up by the poet; nevertheless, literature and life seem not so widely separated when the form of literature is dramatic.

But even nondramatic literature implies someone speaking and something spoken. In this sense, all literature is dramatic: there is always a conflict expressed or implied, and a prevailing emotional state. Such are the conditions of drama, and such are the conditions which give all literature the semblance of life.

It is possible, of course, to press the similarities between life and literature too far. The experience of one will not always serve satisfactorily as a substitute for the experience of the other! However, it is more often the case that the separation of literature and life is insisted upon until each is regarded as autonomous.

Consider the writer. He is man and artist. As a man his experience is both general and specific. The general and the specific may be related only accidentally. As an artist, however, he sees in the unique experience of his own life and that of others characteristics of general significance. The artist in man explores the motivations in man and the artist gives to his discoveries shape and meaning. Eliseo Vivas has stated the dual nature of the man-artist's relationship to experience and literature:

"To discover in its specificity the nature and structure of experience as lived, and to present it in terms that man can grasp, is the creative task of the artist. And it is an essential task. He is engaged in giving us a refurbished picture of our world in concrete terms. He teaches us to discern what we in our purblindness cannot see for ourselves; he tells us what is the dramatic pattern of human life and thus defines for us its sense . . . without his aid our comprehension and our culture coarsens, we get confused, our sensibilities harden; and because, as a result, our imaginative grasp falters, our daily living insensibly relapses to the level of instinct, automatism and animal brutality."

It is true that the living world of reality is full of things that have weight, shape, texture, color to which literature can only point with words. But this is no weak or second-best thing, for words have the shape and force of our attitudes and actions. Sticks and stones may break our bones, but words have equal power to wound; the imagined slight will destroy the lover's appetite as effectively as the odor of strong meat. It is not so much the objects of the real world that have meaning for us; it is our attitudes toward them that make them significant. It is the special talent of a writer that he sees in himself and in others the psychological shape of experience; it is the function of literature through his genius to clarify, intensify, and extend the primary data of human experience so that our duller perceptions may be sharpened and our self-knowledge extended.

**10** As it is used in line 5, "remote" most nearly means

(A) hard to interpret
(B) emotionally distant
(C) unintelligent
(D) exotic
(E) threatening

**11** The primary purpose of the first paragraph is to

(A) describe a particular challenge to writers
(B) define a problem in the teaching of literature
(C) distinguish between two modes of literature
(D) refute a common theory of art
(E) criticize a particular kind of writing

**12** As it is used in line 21, "nondramatic" most nearly means

(A) uninteresting
(B) instantaneous
(C) derivative
(D) poorly written
(E) nontheatrical

**13** The "reflection" mentioned in line 15 refers most directly to a consideration of

(A) whether or not the events in a play are real
(B) the quality of the writing in a particular work of literature
(C) how human beings express emotion
(D) the degree to which an author of a play was involved in its production
(E) the meaning of a particular symbol in a piece of literature

**14** The sentence beginning on line 66 ("But this is no weak or second-best thing") is a response to those who believe that

(A) human beings are fundamentally brutish
(B) fiction is a more effective mode of literature than poetry is
(C) real experiences are not worth writing about
(D) literature is less salient than real experience
(E) the quality of modern literature is declining

**15** The final sentence of the paragraph suggests that the central purpose of literature is to be

(A) entertaining
(B) polemical
(C) comforting
(D) instructive
(E) conciliatory

The questions below are based on the content of the preceding passage. The questions are to be answered on the basis of what is stated or implied in the passage itself or the introductory material that precedes the passage.

## Questions 16–24 are based on the following passage.

*The following passage is an excerpt from an American novel written in 1922.*

Line His morning was not sharply marked into divisions. Interwoven with correspondence and advertisement-writing were a thousand nervous details: calls from clerks who were incessantly and hopefully seeking five furnished rooms and bath at sixty dollars a month; advice to Mat Penniman on getting money out of tenants who had no money.

Babbitt's virtues as a real-estate broker—as the servant of society in the department of finding homes for families and shops for distributors of food—were steadiness and diligence. He was conventionally honest, he kept his records of buyers and sellers complete, he had experience with leases and titles and an excellent memory for prices. His shoulders were broad enough, his voice deep enough, his relish of hearty humor strong enough, to establish him as one of the ruling caste of Good Fellows. Yet his eventual importance to mankind was perhaps lessened by his large and complacent ignorance of all architecture save the types of houses turned out by speculative builders; all landscape gardening save the use of curving roads, grass, and six ordinary shrubs; and all the commonest axioms of economics. He serenely believed that the one purpose of the real-estate business was to make money for George F. Babbitt. True, it was a good advertisement at Boosters' Club lunches, and all the varieties of Annual Banquets to which Good Fellows were invited, to speak sonorously of Unselfish Public Service, the Broker's Obligation to Keep Inviolate the Trust of His Clients, and a thing called Ethics, whose nature was confusing but if you had it you were a High-class Realtor and if you hadn't you were a shyster, a piker, and a fly-by-night. These virtues awakened Confidence, and enabled you to handle Bigger Propositions. But they didn't imply that you were to be impractical and refuse to take twice the value of a house if a buyer was such an idiot that he didn't bargain you down on the asking-price.

GO ON TO THE NEXT PAGE ▶▶▶

Babbitt spoke well—and often—at these orgies of commercial righteousness about the "realtor's function as a seer of the future development of the community, and as a prophetic engineer clearing the pathway for inevitable changes"—which meant that a real-estate broker could make money by guessing which way the town would grow. This guessing he called Vision.

In an address at the Boosters' Club he had admitted, "It is at once the duty and the privilege of the realtor to know everything about his own city and its environs. Where a surgeon is a specialist on every vein and mysterious cell of the human body, and the engineer upon electricity in all its phases, or every bolt of some great bridge majestically arching o'er a mighty flood, the realtor must know his city, inch by inch, and all its faults and virtues."

Though he did know the market-price, inch by inch, of certain districts of Zenith, he did not know whether the police force was too large or too small, or whether it was in alliance with gambling and prostitution. He knew the means of fire-proofing buildings and the relation of insurance-rates to fire-proofing, but he did not know how many firemen there were in the city, how they were trained and paid, or how complete their apparatus. He sang eloquently the advantages of proximity of school-buildings to rentable homes, but he did not know—he did not know that it was worth while to know—whether the city schoolrooms were properly heated, lighted, ventilated, furnished; he did not know how the teachers were chosen; and though he chanted "One of the boasts of Zenith is that we pay our teachers adequately," that was because he had read the statement in the Advocate-Times. Himself, he could not have given the average salary of teachers in Zenith or anywhere else.

**16** The first paragraph characterizes Babbit's work life as

(A) inconsistent
(B) pleasant
(C) hectic
(D) profitable
(E) high-minded

*Babbitt*, Sinclair Lewis. © 1999 Bartleby.com ©1922 Harcourt, Brace & Co., New York

**17** As it is used in line 4, the word "nervous" most nearly means

(A) willful
(B) irrelevant
(C) happy
(D) irritating
(E) hopeful

**18** The "six ordinary shrubs" in lines 25–26 are mentioned in order to emphasize

(A) the dreary nature of the Zenith landscape
(B) the poor planning skills of speculative builders
(C) the isolation of Babbitt from his coworkers
(D) the laziness of the local landscapers
(E) Babbitt's limited range of knowledge

**19** The "good advertisement" mentioned in line 30 is best described as

(A) positive stories in the press
(B) moralistic language
(C) detailed plans for development
(D) contributions of money to charities
(E) large monetary profits

**20** To Babbitt, to be "impractical" (line 41) is to

(A) forgo an easy profit
(B) violate an established law
(C) make an unwise investment
(D) act disrespectfully toward a client
(E) fail to study the information that is helpful to one's business

**21** The "orgies of commercial righteousness" mentioned in line 46 are best typified by

(A) "advertisement-writing" mentioned in line 3
(B) "getting money out of tenants" mentioned in lines 7–8
(C) "landscape gardening" mentioned in line 24
(D) "Annual Banquets" mentioned in line 31
(E) "gambling and prostitution" mentioned in line 69

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**22** Unlike the "engineer" mentioned in line 60, the "engineer" mentioned in line 49 is

(A) figurative
(B) untrustworthy
(C) foreign
(D) successful
(E) complacent

**23** Babbitt mentions the "surgeon" and the "engineer" in lines 57–62 because they both

(A) are highly repected members of the community
(B) make a lot of money
(C) require specialized office space
(D) must have official credentials
(E) have an extensive knowledge

**24** The passage as a whole characterizes Babbitt as

(A) immoral and sneaky
(B) hardworking but superficial
(C) light-hearted and whimsical
(D) intellectual but underappreciated
(E) inconsistent and mercurial

***You may check your work, on this section only, until time is called.***

# Section 2

**Time—25 minutes**
**20 Questions (1–20)**

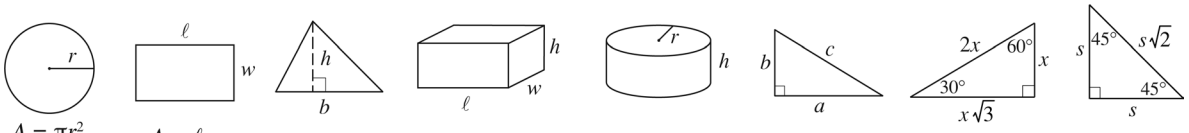


## Directions for Multiple-Choice Questions

In this section, solve each problem, using any available space on the page for scratchwork. Then decide which is the best of the choices given and fill in the corresponding oval on the answer sheet.

- You may use a calculator on any problem. All numbers used are real numbers.
- Figures are drawn as accurately as possible EXCEPT when it is stated that the figure is not drawn to scale.
- All figures lie in a plane unless otherwise indicated.

## Reference Information



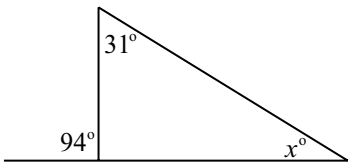

$A = \pi r^2$ $C = 2\pi r$ | $A = \ell w$ | $A = \frac{1}{2}bh$ | $V = \ell wh$ | $V = \pi r^2 h$ | $c^2 = a^2 + b^2$ | Special Right Triangles

The arc of a circle measures 360°.
Every straight angle measures 180°.
The sum of the measures of the angles in a triangle is 180°.

**1** If $x = 7$ and $y = 12$, what is the value of $\frac{3x + y}{11}$?

(A) 3
(B) 4
(C) 5
(D) 6
(E) 7

**2**




*Note: Figure not drawn to scale.*

In the figure above, what is the value of $x$?

(A) 42
(B) 55
(C) 63
(D) 86
(E) 94

**3** The average price of a gallon of gasoline increased by 20% from 1988 to 1996. If in 1988, the price of gasoline was $1.25 per gallon, what was the price of a gallon of gasoline in 1996?

(A) $1.40
(B) $1.50
(C) $1.65
(D) $1.70
(E) $1.75

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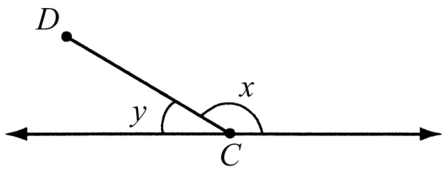
**4**




If line segment $DC$ is rotated 15° counterclockwise about point $C$, $y$ takes on a value of 45°. What is the original value of $x$ before the rotation?

(A) 60
(B) 80
(C) 100
(D) 120
(E) 150

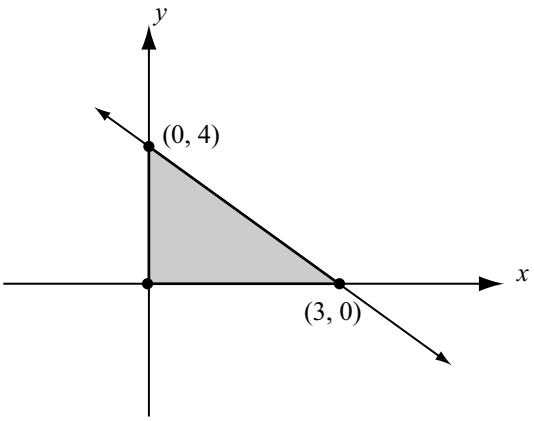
**5**

1 gallon = 4 pints
1 pint = 2 cups

A plastic container contains 6 gallons of water. If 6 cups of water are poured out,what fraction of the original amount remains?

(A) $\frac{1}{8}$
(B) $\frac{1}{4}$
(C) $\frac{1}{2}$
(D) $\frac{3}{4}$
(E) $\frac{7}{8}$

**6**




In the figure above, what is the perimeter of the shaded region?

(A) 7
(B) 9
(C) 10
(D) 12
(E) 15

**7**

A certain number, $b$, is quadrupled. The result is then subtracted from three times the number, $p$. What is the result if that difference is subtracted from $y$?

(A) $y + 3p + 4b$
(B) $y + 3p - 4b$
(C) $y - 3p - 4b$
(D) $y - 3p + 4b$
(E) $3p - 4b - y$

**8**

When $p$ is divided by 5, the remainder is 4. What is the remainder when $p + 3$ is divided by 5?

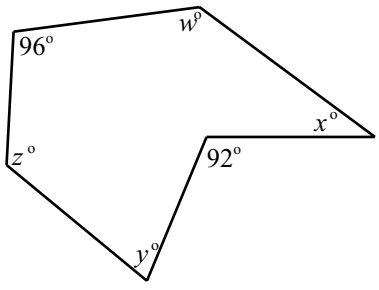
(A) 0
(B) 1
(C) 2
(D) 3
(E) 4

**9**

Trynece would like to order a sandwich at her local deli. She can choose from four different types of bread, three different types of meat, six different toppings, and two different condiments. If she chooses one type of bread, one type of meat, one topping, and one condiment for her sandwich, how many different sandwiches are possible?

(A) 13
(B) 48
(C) 72
(D) 96
(E) 144

**10**




In the figure above, what is the average value (arithmetic mean) of $w$, $x$, $y$, and $z$?

(A) 86
(B) 87
(C) 88
(D) 89
(E) 90

**11** If $a > 0$, $a^3 + b^3 = 26$, and $a^3 - b^3 = 28$, what is the value of $a$?

(A) 2
(B) 3
(C) 5
(D) 7
(E) 9

**12** The three sides of a triangle have lengths of 6, 10, and $w$. Which of the following could be the area of the triangle?

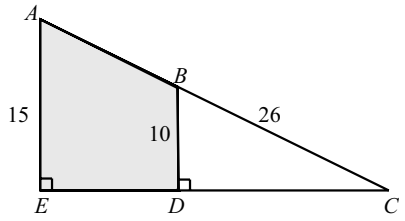
I. 12
II. 30
III. 45

(A) I only
(B) II only
(C) I and II only
(D) II and III only
(E) I, II, and III

**13** The symbols ¤ and □ each represent one of the fundamental arithmetic operators: $+$, $-$, $\times$, or $\div$. If $(6 \text{ ¤ } 3) \square (4 \square 2) = 12 \text{ ¤ } 2$, what is the value of $(4 \text{ ¤ } 3) \square 6$?

(A) 6
(B) 12
(C) 18
(D) 24
(E) 30

**14**




*Note: Figure not drawn to scale.*

In the figure above, what is the perimeter of the shaded region?

(A) 48
(B) 49
(C) 50
(D) 51
(E) 52

**15** If $y = 4$ and $y = -3$ are both solutions of the equation $y^2 + by + c = 0$ where $b$ and $c$ are constants, what is the value of $b$?

(A) $-2$
(B) $-1$
(C) 0
(D) 1
(E) 2

**16** A bag contains jellybeans of four colors: red, orange, yellow, and green. It contains twice as many red as orange jellybeans, three times as many orange as yellow jellybeans, and four times as many yellow as green jellybeans. If a jellybean is drawn at random, what is the probability that it is yellow?

(A) $\frac{4}{41}$
(B) $\frac{1}{10}$
(C) $\frac{5}{41}$
(D) $\frac{7}{32}$
(E) $\frac{12}{41}$

**17** A store ordinarily sells a pair of sneakers for $s$ dollars. During a sale, the price of the sneakers is discounted 20%. If a customer purchases the sneakers on sale and also receives an additional 15% frequent-buyer discount, which of the following represents the amount the customer pays for the sneakers, in dollars?

(A) $0.65s$
(B) $0.68s$
(C) $0.75s$
(D) $0.80s$
(E) $0.94s$

GO ON TO THE NEXT PAGE ▸▸▸

2

**18** Nguyen drives to an NFL football game a distance of $d$ miles in $t$ hours and arrives 1 hour late. At what average speed, in miles per hour, should he have driven in order to have arrived on time?

(A) $t-1$

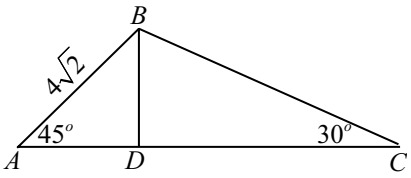
(B) $\dfrac{t-1}{d}$

(C) $\dfrac{d}{t-1}$

(D) $\dfrac{d}{t}-3$

(E) $\dfrac{t}{d-1}$

**19**




*Note: Figure not drawn to scale.*

In the figure above, if $AD = DB$, what is the area of triangle $ABC$?

(A) $8+8\sqrt{3}$
(B) $4+4\sqrt{3}$
(C) 48
(D) $4+4\sqrt{2}$
(E) $8+8\sqrt{2}$

**20** If $a$ and $b$ are positive integers and $5^{(a+b)} = 5^{3c}$, which of the following is equal to $5^{9c}$?

(A) $5^{3a+b}$
(B) $15^{a+b}$
(C) $25^{3a+3b}$
(D) $125^{a+b}$
(E) $125^{3a+3b}$

**STOP**

***You may check your work, on this section only, until time is called.***

# Section 3

**Time—25 minutes**
**24 Questions (25–48)**



Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Medieval kingdoms did not become constitutional republics overnight; on the contrary, the change was ------.

(A) unpopular
(B) unexpected
(C) advantageous
(D) sufficient
(E) gradual

*Correct response: (E)*

**25** In 1954, the Supreme Court took a historic step toward ------ with the *Brown vs. Board of Education* decision, which ruled that segregation in schools was unequal and that such ------ should be eliminated with deliberate speed.

(A) tolerance .. moderation
(B) inequity .. bigotry
(C) equality . . discrimination
(D) disparity . . apathy
(E) revelation . . integrity

**26** Douglas Adams, author of *The Hitchhiker's Guide to the Galaxy*, was a master of ------; he is remembered for his ability to craft humorous and insightful parody.

(A) persistence
(B) atrocity
(C) persuasion
(D) candor
(E) satire

**27** On May 4, 1970, a protest against the Vietnam War at Kent State University turned into a disaster when members of the National Guard, summoned to ------ antiwar protests, shot and killed four students.

(A) suppress
(B) revere
(C) mortify
(D) berate
(E) cultivate

**28** Children diagnosed with autism often experience ------ language development; many learn to speak several years later than their normal peers.

(A) prudent
(B) ruthless
(C) aggressive
(D) arrested
(E) expedited

**29** For the blind, ----- is of heightened importance since their sense of smell provides them with distinct impressions of their surrounding environment.

(A) olfaction
(B) abstinence
(C) pungency
(D) gustation
(E) mastication

3

**30** The hospital's chief of staff, who invented and perfected the surgical procedure he was using, accidentally left a clamp in his patient, proving that even the most ----- surgeon is -----.

(A) inept . . preeminent
(B) adept . . fallible
(C) recalcitrant . . malleable
(D) deft . . unerring
(E) tactile . . apprehensive

**31** Whether it is ----- or mere luck, Manolis always seems to have an umbrella with him when it rains, even if there is no sign of precipitation in the forecast.

(A) pugnacity
(B) humility
(C) prescience
(D) magnanimity
(E) avarice

**32** Thomas Paine was ----- for the American Revolution; his pamphlet *Common Sense*, which ----- American freedom from English control, served as an inspiration for the colonists.

(A) an impetus . . disparaged
(B) a nihilist . . vindicated
(C) an abomination . . debunked
(D) a harbinger . . denigrated
(E) a catalyst . . championed

Each passage below is followed by one or two questions based on its content. Answer each question based on what is stated or implied in the preceding passage.

## Questions 33–34 are based on the following passage.

Line A physical law is a statement of the way in which matter behaves. These are laws over which we have no control; they have existed and will exist forever. The purpose of all basic
5 research in the physical sciences is to discover these laws. Understanding science is equivalent to knowing the laws of nature and their consequences.

Incorrect or incomplete observations can
10 lead to statements that are believed to be physical laws; but these incorrect statements are not laws of nature at all. For example, Aristotle believed that he had discovered a law of nature when he stated that heavier bodies
15 accelerate toward the earth faster than lighter bodies. In fact, he had not discovered a law of physics. There is no such physical law. The actual law of nature which applies to this situation was discovered many centuries later
20 by Galileo.

**33** Assuming that all of the following statements are true, which of the following is NOT an example of a physical law, according to the passage?

(A) Water molecules vaporize when they acquire sufficient kinetic energy.
(B) Accurate observations are essential to establishing correct scientific theories.
(C) Any two massive bodies exert gravitational force upon each other.
(D) Electrons can only occupy discrete energy levels within an atom.
(E) No massive particle can move faster than the speed of light.

First paragraph: *Principles of Physics*, F. Bueche, McGraw-Hill ©1982, p. 53
Second paragraph: *Gender Voices*, David Graddol and Joan Swann, ©1989, Basil Blackwell, p. 4

**34** In this passage, Aristotle is mentioned primarily because he was

(A) a philosopher whose thinking was flawed
(B) an inspiration to Galileo
(C) the inventor of the scientific method
(D) the discoverer of a law of physics
(E) one who emphasized observation over logic

## Questions 35–36 are based on the following passage.

*The following passage discusses the role of language in the study of gender.*

Line Difficulties in defining the term *language* present the first obstacle to understanding the various claims made about the role of language in constructing gender divisions. The literature is filled with many lively debates, between writers of differing political persuasions and those with differing disciplinary backgrounds, and it is difficult to decide which conflicts of opinion have substance and which arise from different uses of the word language and from different understandings of what language is. It is not difficult to see why there exists a problem of definition. Language, like gravity, is one of those things with which everyone is familiar but few can adequately describe and explain. This is a surprising fact considering the intimate part it plays in our lives, but people have less privileged access to many of their own mental processes than they imagine. Perhaps this is one reason why there are many popular conceptions and misconceptions about language, how it works, and how it affects people. But if there is danger in taking language for granted, there is an equal danger of mystification. It is all too easy to talk about language in ways which make it appear a complex, mysterious and paradoxical thing which is beyond the understanding of non-specialists.

**35** This passage is primarily concerned with

(A) explaining the nature of a problem
(B) defining an important term
(C) describing opposing positions in a debate
(D) illustrating a theory with examples
(E) providing a historical background

**36** The passage mentions which of the following as a reason why people have misconceptions about language?

I. an insufficient knowledge of linguistics
II. an inability to examine their own thinking
III. the tendency to mystify language

(A) II only
(B) III only
(C) I and II only
(D) I and III only
(E) II and III only

The passages below are followed by questions based on their content or the relationship between the passages. Answer the questions on the basis of what is stated or implied in the passages or the introductory material preceding them.

## Questions 37–48 are based on the following passages.

*The following passages discuss the death rituals of different cultures throughout history.*

### Passage 1

Line Our oldest evidence for our human predecessors' attitudes toward death is to be found in their ways of disposing of dead human beings' bodies. Archaeological evidence seems to show that funerary rites were already being practiced by Neanderthal Man—a now extinct variety of hominid which was different from, though, for all that we know, not older than, homo sapiens, the variety to which the present-day so-called "races" belong, all alike. Funerary rites are ceremonial practices that are intended to express reverence for the person who has died, to express grief at the loss of this now dead member of the community, and to express awe and concern in the presence of death itself, when it is the death of a human being.

The oldest, most numerous, and most imposing relics of our ancestors are funerary. At different times and places the dead bodies of human beings have been honored in an amazing variety of ways. They have been buried in graves or in tombs or under tumuli or inside

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pyramids. They have been burnt on pyres, and the ashes have been preserved in urns or have been scattered to the winds. They have even been exposed to be eaten by carrion birds or by scavenging wild animals—not because they were held in honor, but because earth, fire, and water were held in still greater honor, and these elements were thought to be defiled and dishonored by contact with a human corpse. But, however diverse man's funerary rites have been, they have all had a common signification. They have signified that a human being has a dignity in virtue of his being human; that his dignity survives his death.

In our present-day society, this attitude of reverence towards the dead, and this feeling of obligation to give them "decent burial," are as lively and as compelling as ever, even among present-day people who believe, with their minds, that the idea of human dignity is an illusion and that, in terms of value, a human being is on par with any non-human living creature and indeed with any other natural phenomenon, animate or inanimate. In practice, people who believe this still pay reverence to the dead, even though this behavior of theirs may be in conflict with their beliefs and even their principles.

## Passage 2

Primitive man lived in a world of fear. He reacted to most natural phenomena such as weather events based on that fear.

He eventually attributed many life events to his instinctive knowledge of a higher being or power. In his primitive mind, life and death events were the acts of spirits. Since he was not able to see or sense these spirits, he lived in a world of terror.

In an effort to enact some type of truce with these "gods" or "spirits," man devised charms, ceremonies and rituals to placate these spirits.

Although we may find ancient burial customs to be strange or in some cases repugnant, they obviously arose for a reason. The first burial customs, then, were crude efforts to protect the living from the spirits which caused the death of the person. Fear of the dead caused the burning of bodies to destroy evil spirits.

Many primitive tribes even today simply run away from their dead, leaving them to rot. Zoroastrians similarly allow their dead to simply rot or be devoured by vultures. They consider fire to be too sacred to be put to use disposing of the dead, and burial is thought to be a defilement and injury to mother earth.

Others place the body deep in the jungle to be devoured by wild beasts. In Tibet and among the Kamchatkan Indians, dogs are used for this purpose because they believe that those eaten by dogs will be better off in the other world.

Herodotus tells us that the Calatians ate their own dead. It was considered a sacred honor and duty of the family. Queen Artemisia supposedly mixed the ashes of her beloved with wine and drank it. To this day, certain African tribes are known to grind the bones of their dead and mingle them with their food.

The Zulus burn all of the belongings of the deceased to prevent the evil spirits from even hovering in the vicinity. Some tribes would set up a ring of fire around the bodies of their dead to singe the wings of the spirits and prevent them from attacking other members of the community. Other tribes would throw spears and arrows into the air to kill hovering spirits or would eat bitter herbs to drive away or kill spirits that may have already invaded their bodies.

**37** The phrase "for all that we know" (line 8) suggests a limited knowledge about

(A) the death rites of particular cultures
(B) what geographical region Neanderthals came from
(C) whether Neanderthals differed from homo sapiens
(D) the relative age of Neanderthals and homo sapiens
(E) whether all current races belong to the species homo sapiens

**38** In line 29, the phrase "held in" most nearly means

(A) inclined to
(B) devoid of
(C) denied
(D) imprisoned by
(E) regarded with

Passage 1: *Man's Concern with Death*, Arnold Toynbee. ©1968 McGraw-Hill

Passage 2: *http://www.wyfda.org/basics_2.html*

**39** The sentence in lines 25–31 ("They have even been . . . a human corpse") suggests that, in certain cultures, the dignity of a human being is

(A) increased when the person dies
(B) secondary to the honor of natural elements
(C) violated when the person touches fire
(D) greater than the dignity of natural elements
(E) as temporary as the person's body

**40** The phrase "with their minds" (lines 41–42) suggests that some "present-day people" (line 41)

(A) are ignorant of funerary rites of the past
(B) exalt the concept of human dignity
(C) think in one way but act in another
(D) do not pay reverence to the dead
(E) regard all funerary rites with equal reverence

**41** Which of the following, if true, would most directly contradict the central argument of Passage 2?

(A) Some tribes bury their dead to keep their souls protected from evil spirits.
(B) Some cultures believe that the same spirits that control the weather can also bring death.
(C) Some cultures still believe that material objects have an effect on the immaterial spirit world.
(D) Some ancient tribes used funerary rites to signify the dominance of humans over the spirit world.
(E) Water can signify different things in the funerary rites of different cultures.

**42** The use of the word "eventually" in line 54 suggests that the author of Passage 2 believes that primitive humans' fear of natural phenomena

(A) was not always connected to supernatural forces
(B) derived from rituals
(C) grew weaker with time
(D) was met with a defiant attitude
(E) was only recently discovered by anthropologists

**43** Which of the following is an example of the "defilement" mentioned in line 77?

(A) "scavenging wild animals" (line 27)
(B) "contact with a human corpse" (line 31)
(C) "charms" (line 61)
(D) "ancient burial customs" (lines 63–64)
(E) "the burning of bodies" (line 69)

3

**44** The final paragraph of Passage 2 emphasizes which aspect of the spirit world?

(A) its benevolence
(B) its immortality
(C) its malevolence
(D) its omnipresence
(E) its wisdom

**45** The description of funerary rites in lines 21–31 accounts for the practices of which of the following discussed in Passage 2?

I. the Calatians
II. the Zoroastrians
III. Queen Artemisia

(A) I only
(B) II only
(C) I and II only
(D) II and III only
(E) I, II, and III

**46** The two passages differ in their perspectives in that Passage 1 suggests that the primary purpose of funerary rites was

(A) to return the body to the earth, while Passage 2 suggests that it was to return the person to the spirit world
(B) to pay homage to the spirit world, while Passage 2 suggests that it was to conquer evil
(C) to honor the person's worldly deeds, while Passage 2 suggests that it was to protect the person's spirit from harm
(D) to signify human dignity, while Passage 2 suggests that it was to dispel fear
(E) to honor the living, while Passage 2 suggests that it was to honor the dead

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**47** Which of the following best summarizes what the two passages indicate about the use of fire in funerary rites?

(A) Both passages indicate that it is universally feared by tribal societies.
(B) Both passages indicate that it is universally revered by tribal societies.
(C) Both passages indicate that it is integral to some funerary rites and forbidden in others.
(D) Passage 1 indicates that it is avoided in funerary rites, while Passage 2 indicates that it is employed universally.
(E) Passage 1 indicates that it is essential to all funerary rites, while Passage 2 does not mention its use in funerary rites.

**48** Which of the following topics is discussed in Passage 1 but NOT in Passage 2?

(A) Neanderthal man
(B) reverence for natural elements
(C) scavengers
(D) human awe of death
(E) burial customs

***You may check your work, on this section only, until time is called.***

# Section 4

**Time—25 minutes**
**18 Questions (21–38)**

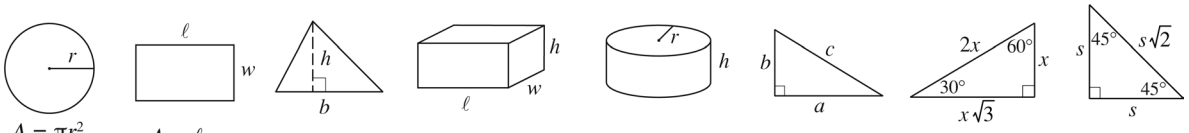


## Directions for Multiple-Choice Questions

In this section, solve each problem, using any available space on the page for scratchwork. Then decide which is the best of the choices given and fill in the corresponding oval on the answer sheet.

- You may use a calculator on any problem. All numbers used are real numbers.
- Figures are drawn as accurately as possible EXCEPT when it is stated that the figure is not drawn to scale.
- All figures lie in a plane unless otherwise indicated.

## Reference Information




$A = \pi r^2$
$C = 2\pi r$

$A = \ell w$

$A = \frac{1}{2}bh$

$V = \ell wh$

$V = \pi r^2 h$

$c^2 = a^2 + b^2$

Special Right Triangles

The arc of a circle measures 360°.
Every straight angle measures 180°.
The sum of the measures of the angles in a triangle is 180°.

**21** If a square has an area of 49 square inches, what is its perimeter in inches?

(A) 14
(B) 21
(C) 28
(D) 35
(E) 42

**22** For all real numbers $p$, let

$$p^* = \begin{cases} p^2 & \text{if } p \text{ is an odd integer} \\ 2p & \text{if } p \text{ is an even integer} \end{cases}$$

What is the value of $(3^* + 1^*)^*$ ?

(A) 10
(B) 20
(C) 36
(D) 64
(E) 100

**23** If the sum of 3 consecutive even integers is 66, what is the value of the greatest of these integers?

(A) 20
(B) 21
(C) 22
(D) 23
(E) 24

**24**

POLITICAL PARTY MEMBERSHIP

| | Men | Women | Total |
|---|---|---|---|
| Democrat | 320 | | 600 |
| Republican | | | |
| Independent | 38 | | 105 |
| Total | | 645 | 1,200 |

4

The table above represents the results of a survey of party membership taken in a small town. Based on the information in the table, how many men in the town are Republicans?

(A) 67
(B) 197
(C) 298
(D) 495
(E) 555

**25**

$$\begin{array}{r} 3XY \\ +\ 2YX \\ \hline Y99 \end{array}$$

If $X$ and $Y$ represent distinct digits in the correctly worked addition problem above, what is the value of $X$ ?

(A) 3
(B) 4
(C) 5
(D) 6
(E) 7

**26**

If $x$ is a positive odd integer, what is the units digit of $(4^x)^2$?

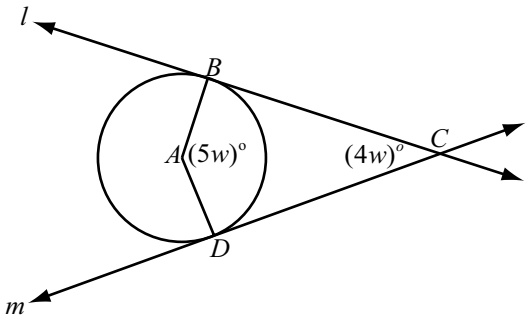
(A) 2
(B) 4
(C) 6
(D) 8
(E) 0

**27**

To make a citrus gelatin, orange- and lemon-flavored gelatins are mixed in the ratio of 2:3. To make a sour gelatin, lemon- and lime-flavored gelatins are mixed in a ratio of 7:3. If equal amounts of the citrus and sour gelatin are mixed, what fraction of the mixture will be lemon-flavored gelatin?

(A) $\frac{7}{20}$
(B) $\frac{1}{2}$
(C) $\frac{13}{20}$
(D) $\frac{3}{4}$
(E) $\frac{17}{20}$

**28**




*Note: Figure not drawn to scale.*

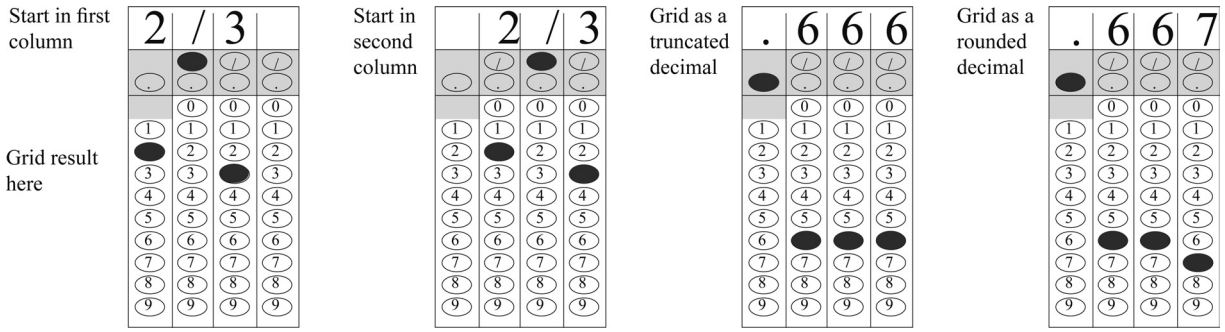
In the figure above, lines $l$ and $m$ are tangent to circle $A$ at points $B$ and $D$, respectively. What is the value of $w$?

(A) 10
(B) 20
(C) 25
(D) 30
(E) 45

## Directions for Student-Produced Response Questions

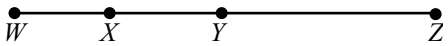
Each of the questions in this section requires you to solve the problem and enter your answer in a grid, as shown below.

- If your answer is 2/3 or .666 . . . , you must enter **the most accurate value the grid can accommodate**, but you may do this in one of four ways:




- In the example above, gridding a response of 0.67 or 0.66 is **incorrect** because it is less accurate than those above.
- The scoring machine cannot read what is written in the top row of boxes. You **MUST** fill in the numerical grid accurately to get credit for answering any question correctly. You should write your answer in the top row of boxes only to aid your gridding.
- Do **not** grid in a mixed fraction like $3\frac{1}{2}$ as | 3 | 1 | / | 2 | because it will be interpreted as $\frac{31}{2}$. Instead, convert it to an improper fraction like 7/2 or a decimal like 3.5 before gridding.
- None of the answers will be negative, because there is no negative sign in the grid.
- Some of the questions may have more than one correct answer. You must grid only one of the correct answers.
- You may use a calculator on any of these problems.
- All numbers in these problems are real numbers.
- Figures are drawn as accurately as possible EXCEPT when it is stated that the figure is not drawn to scale.
- All figures lie in a plane unless otherwise indicated.

**29**




In the figure above, $WX = \frac{1}{2}WY$ and $XY = \frac{1}{3}YZ$. If $XY = 2$, what is $XZ$?

**30**

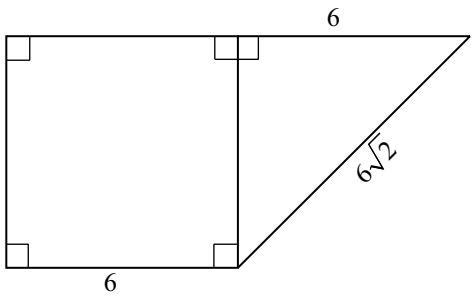
If $r$ and $s$ are positive integers and $r < s$, how many integer pairs $(r, s)$ satisfy the equation $4r + 5s < 30$ ?

**31** If the smallest positive three-digit integer without repeated digits is added to the greatest possible three-digit integer without repeated digits, what is the result?

**32** On a blueprint that is drawn to scale, the drawing of a rectangular garden has the dimensions 10 inches by 14 inches. If the shorter side of the garden measures 25 feet, what is the perimeter of the actual garden?

**33** A $650 prize is to be distributed in the ratio of 6:4:2:1 to the first, second, third, and fourth place finishers, respectively. How much money will the second place finisher receive?

**34**



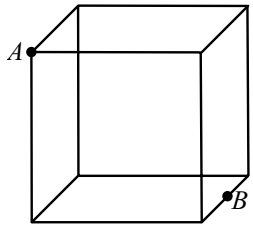

*Note: Figure not drawn to scale.*

The figure above shows the dimensions, in inches, of a ceramic tile. How many of these tiles would be needed to completely cover a floor that is 12 feet by 15 feet?

**35** If $X$ is the sum of all positive even integers less than or equal to 50 and $Y$ is the sum of all positive odd integers less than 50, what is $X - Y$?

**36** Three students each write a randomly chosen positive integer less than or equal to 3 on a blank notecard. What is the probability that the sum of the integers written on the cards is greater than 7?

**37**




The volume of the cube in the figure above is 216 cubic units. If $B$ is the midpoint of its corresponding edge, what is the distance from point $A$ to point $B$?

**38** For all integers $m$ and $n$ greater than 1, let $m \square n$ represent the sum of all of the common factors of $m$ and $n$. What is the value of $(24 \square 36) \square (33 \square 44)$?

**STOP**

***You may check your work, on this section only, until time is called.***

# Section 5

**Time—30 minutes**
**39 Questions (1–39)**

**Directions for "Improving Sentences" Questions**

Each of the sentences below contains one underlined portion. The portion may contain one or more errors in grammar, usage, construction, precision, diction (choice of words), or idiom. Some of the sentences are correct.

Consider the meaning of the original sentence, and choose the answer that best expresses that meaning. If the original sentence is best, choose (A), because it repeats the original phrasing. Choose the phrasing that creates the clearest, most precise, and most effective sentence.



EXAMPLE:

The children <u>couldn't hardly believe their eyes</u>.

(A) couldn't hardly believe their eyes
(B) would not hardly believe their eyes
(C) could hardly believe their eyes
(D) couldn't nearly believe their eyes
(E) could hardly believe his or her eyes

Ⓐ Ⓑ ● Ⓓ Ⓔ

**1** The sous-chef chopped vegetables and meat all afternoon <u>for organizing the foods</u> for the big dinner later that night.

(A) for organizing the foods
(B) to organize the foods
(C) for the organization of the foods
(D) in order for organization of the foods
(E) in the organization of the foods

**2** Robert Frost, known for his political conservatism as well as his philosophical <u>poems, becoming</u> one of America's leading twentieth-century poets.

(A) poems, becoming
(B) poems; becoming
(C) poems, he has also become
(D) poems, to become
(E) poems, became

**3** Many people are surprised to learn that an hour of cross-country skiing at a moderate pace will burn as many calories <u>as an hour of jogging</u>.

(A) as an hour of jogging
(B) as to jog for an hour
(C) than to jog for an hour
(D) as if you jog for an hour
(E) as will to jog for an hour

**4** Cigarettes, long thought to be extremely dangerous, <u>instead are now known</u> to be a major cause of lung cancer.

(A) instead are now known
(B) surprisingly, is now believed
(C) are indeed now known
(D) amazingly has been found
(E) unexpectedly is now known

**5** Working with unions to organize workers and mediate labor disputes, the efforts of the Reverend Jesse Jackson having aided the labor movement.

(A) the efforts of the Reverend Jesse Jackson having aided the labor movement
(B) the Reverend Jesse Jackson aiding the labor movement with his efforts
(C) the labor movement, through the effort of Reverend Jesse Jackson, has been aided
(D) the Reverend Jesse Jackson has aided the labor movement
(E) the efforts of Reverend Jesse Jackson have aided the labor movement

**6** Eli Whitney was an intellectual, a teacher, and he invented the cotton gin, which revolutionized the production of cotton.

(A) he invented the cotton gin, which revolutionized
(B) an inventor; his cotton gin revolutionized
(C) inventing the cotton gin, which revolutionized
(D) an inventor whose cotton gin is revolutionizing
(E) he invented the cotton gin; it revolutionized

**7** Neither of the boy scouts appreciated the historical significance of their climb to the top of the mountain.

(A) Neither of the boy scouts appreciated the historical significance of their climb to the top of the mountain.
(B) Neither of the boy scouts had appreciated the historical significance of his climbing to the top of the mountain.
(C) Neither boy scout would be appreciating the historical significance of their climb to the top of the mountain.
(D) Neither boy scout having climbed the mountain appreciated the historical significance of it.
(E) Neither of the boy scouts that climbed the mountain appreciated the significance of it.

**8** When one is driving on a highway where cars travel at high speeds, you must be careful when changing lanes to make sure that there is no car in the blindspot.

(A) When one is driving on a highway where cars travel at high speeds, you must
(B) When one will drive on a highway where cars travel at high speeds you must
(C) When one is driving on a highway where cars travel at high speeds, one must
(D) Driving on a highway, cars traveling at high speeds, one must
(E) When one is driving on a highway where cars travel at high speeds; must

**9** For me, the 2004 World Series win by the Boston Red Sox is an event that will always be remembered.

(A) For me, the 2004 World Series win by the Boston Red Sox is an event that will always be remembered.
(B) The 2004 World Series win by the Boston Red Sox will be an event that is always remembered by me.
(C) An event that is always remembered by me is the 2004 World Series win by the Boston Red Sox.
(D) The 2004 World Series win by the Boston Red Sox is an event that I will always remember.
(E) I will always remember the event, a 2004 World Series win by the Boston Red Sox.

**10** Induction is the influence of one group of cells on the development of another, through physical contact or chemical signaling.

(A) Induction is the influence of one group of cells on the development of another, through physical contact or chemical signaling.
(B) Induction has been the influence of one group of cells on the development of another; through physical contact or chemical signaling.
(C) Through physical contact or chemical signaling, induction, the influence of one group of cells on the development of another.
(D) Induction, the influence on one group of cells on the development of another, through physical contact or chemical signaling.
(E) The influence of one group of cells on the development of another, is induction, through physical contact or chemical signaling.

**11** The choice couples make between buying a house and renting an apartment often come down to whether or not they have the financial flexibility to take out a mortgage.

(A) The choice couples make between buying a house and renting an apartment often come
(B) The choice between buying a house and renting an apartment is one couples make that often come
(C) Couples choosing between buying a house and renting an apartment often comes
(D) The choice couples make between buying a house and renting an apartment often comes
(E) Couples making the choice between buying a house and renting an apartment often comes

**12** Tim's illness was quite prolonged, which made him think that he would never get better.

(A) prolonged, which made him
(B) prolonged, which has made him
(C) prolonged; made him
(D) prolonged, but it made him
(E) prolonged, making him

**13** Critics complain to the President about the nation's growing budget deficit, but he constantly reminds those individuals that the national debt is less than the previous administration.

(A) that the national debt is less than the previous administration
(B) that the national debt is less than that of the previous administration
(C) the previous administration had a national debt that is less than that
(D) the national debt is lesser than the previous administration
(E) that the national debt has been less than the previous administration

**14** We were so enthralled by Kofi Annan's words at commencement that we could hardly believe that he had already spoke for over ninety minutes; it had seemed like only ten.

(A) had already spoke for over ninety minutes; it
(B) had already spoken for over ninety minutes, when it
(C) had been speaking for over ninety minutes; it
(D) would have been speaking for over ninety minutes
(E) spoke for over ninety minutes; it

**15** At the 2002 World Summit in Johannesburg, President Thabo Mbeki urged greater cooperation between the many African states.

(A) urged greater cooperation between the many African states
(B) had urged greater cooperation between the many African states
(C) urges greater cooperation between the many African states
(D) urged greater cooperation among the many African states
(E) urges greater cooperation among the many African states



GO ON TO THE NEXT PAGE ▶▶▶

**16** A French post-impressionist painter of the nineteenth century, Paul Cézanne's artwork was influential in the development of many twentieth-century artistic movements.

(A) Paul Cézanne's artwork was influential in the development of many twentieth-century artistic movements
(B) Paul Cézanne influenced the development of many twentieth-century artistic movements with his artwork
(C) Paul Cézanne's influence on the development of many twentieth-century artistic movements occurred through his artwork
(D) Paul Cézanne had influenced through his artwork the development of many twentieth-century artistic movements
(E) Paul Cézanne's artwork had influence on the development of many twentieth-century artistic movements

**17** Despite having spent the entire morning in the Golden Spa, Alexia was neither relaxed by the vichy shower and she was not soothed by the seaweed wrap.

(A) by the vichy shower and she was not soothed by the seaweed wrap
(B) by the vichy shower nor soothed by the seaweed wrap
(C) in the vichy shower and she was not soothed by the seaweed wrap
(D) by the vichy shower, while the seaweed wrap was not soothable
(E) to enjoy the seaweed wrap nor by the vichy shower

**18** On December 7, 1941, enemy forces suddenly and deliberately attacked Pearl Harbor, propelling the United States armed forces into the Second World War.

(A) enemy forces suddenly and deliberately attacked Pearl Harbor,
(B) a sudden and deliberate attack by the enemy forces on Pearl Harbor
(C) suddenly and deliberately, enemy forces attacked Pearl Harbor,
(D) Pearl Harbor was suddenly and deliberately attacked by enemy forces,
(E) enemy forces attacked Pearl Harbor suddenly and deliberately and

**19** Jim Abbott, a professional baseball player with only one hand, pitching a no-hitter in 1993 while a member of the New York Yankees.

(A) pitching a no-hitter in 1993 while a member of the New York Yankees
(B) has pitched a no-hitter in 1993 while a member of the New York Yankees
(C) would be pitching a no-hitter in 1993 while a member of the New York Yankees
(D) while a member of the New York Yankees, pitching a no-hitter in 1993
(E) pitched a no-hitter in 1993 while a member of the New York Yankees

**20** The quality of health care, which varies according to a patient's geographic location and financial resources, have drastically declined in recent years.

(A) have drastically declined
(B) has drastically declined
(C) having drastically declined
(D) drastically declining
(E) will have drastically declined

**Directions for "Identifying Sentence Error" Questions**

The following sentences may contain errors in grammar, usage, diction (choice of words), or idiom. Some of the sentences are correct. No sentence contains more than one error.

If the sentence contains an error, it is underlined and lettered. The parts that are not underlined are correct.

If there is an error, select the part that must be changed to correct the sentence.

If there is no error, choose (E).

EXAMPLE:

By the time they reached (A) the halfway point in the race (B), most of the runners (C) hadn't hardly (D) begun to hit their stride. No error (E)

(A) (B) ● (D) (E)

5

**21** The Jacobson family, well known for (A) its (B) po-litical involvement in the local government, has had a member ran (C) for office in each of the last (D) ten elections. No error (E)

**22** Professor Watkins has made (A) it clear that if anyone wants to turn in (B) a paper after the deadline, he or she (C) should be certain to get a dean's excuse by Monday. (D) No error (E)

**23** It is clear (A) that George was excepted (B) by the admissions committee at the Medical School because (C) he is the son of a prominent physician affiliated (D) with the Health Center. No error (E)

**24** Research has (A) indicated that an infant's environment has a crucial effect (B) on brain development; the more stimulation a baby receives, the more (C) synaptic connections are formed in the brain, which (D) contributes to greater intellectual ability later in life. No error (E)

**25** During (A) Paul and Richard's Thanksgiving vacation, mowing the lawn, trimming (B) the shrubs, and raking the leaves consumed (C) most of his (D) free time. No error (E)

**26** In (A) November 2004, President George W. Bush was elected (B) to serve (C) a second consecutive term; winning (D) the popular vote decisively by over three million votes. No error (E)

**27** During the campus tour, the guide asked (A) my brother and me (B) if we (C) had any interest in rowing crew when (D) we begin college next year. No error (E)

**28** Given (A) how poorly the Orlando Magic had performed (B) the year before, I was impressed by how skillful (C) the team played in (D) its first two games of the season. No error (E)

**29** Cockroaches, who (A) are also known as (B) water bugs, are among (C) the most (D) difficult household pests to control. No error (E)

**30** When (A) Maria returned home from the (B) amusement park, she wrote (C) down in her diary everything that she did (D) that afternoon. No error (E)

5

**31** Along with Upton Sinclair (A) the novels of (B) George Orwell were (C) politically charged pieces that challenged (D) government policy. No error (E)

**32** With just (A) seconds remaining to go (B) on the clock, the quarterback threw a long pass, hoping to (C) connect for a touchdown that would win (D) the game. No error (E)

**33** The teacher's instructions were (A) ambivalent (B), and so we left (C) the class with no real understanding (D) of the assignment. No error (E)

**34** Long respected (A) as one of the most (B) influential athletes of his generation, Ted Williams succeeded in (C) every aspect of his career and serving (D) as a role model for a generation of children. No error (E)

**Directions for "Improving Paragraphs" Questions**

Below is an early draft of an essay. It requires revision in many areas.

The questions that follow ask you to make improvements in sentence structure, diction, organization, and development. Answering the questions may require you to understand the context of the passage as well as the rules of standard written English.

## Questions 35–39 refer to the following passage.

(1) *The 2000 Presidential election was one of the closest in United States History.* (2) *In this election, Democrat Vice-President Al Gore ran against Republican George W. Bush.* (3) *Heading into Election Day, the race a virtual tie.* (4) *The country was as divided by its political views as it had ever been in its 224 year history.*

(5) *The national media called the state a win for Al Gore at around 9 P.M. on election night, well before all the polls had even closed.* (6) *In actuality, Florida was too close to call.* (7) *The election was not without its share of controversy.* (8) *The state of Florida, whose governor was Bush's brother, was the center of this controversy.*

(9) *Because the Florida vote was so close, required was that a formal recount be held because of government mandate.* (10) *Gore's campaign asked that the votes in three Florida counties be re-counted by hand; an effort that did not show any mistakes having been made.* (11) *The democrats wanted the formal recount to be done by hand for the entire state, whereas the Republicans wanted the recount stopped since the original recount by hand showed no errors.* (12) *This issue was taken to the U.S. Supreme Court, which voted 5-4 in favor of stopping the recount.*

(13) *Bush ended up having won the state of Florida by a mere 537 votes.* (14) *After this decision, the voting results in the state of Florida were officially certified and Bush received the state's 25 electoral votes, and with that, the Presidency of the United States.*

**35** Which of the following is the best revision of sentence 3 (reproduced below)?

*Heading into Election Day, the race a virtual tie.*

(A) The Election Day approached with the race as a virtual tie.
(B) Heading into Election Day, the race tied
(C) Approaching Election Day, the race was a virtual tie.
(D) As Election Day approached, the race was a virtual tie.
(E) Election Day approached the race being a virtual tie.

**36** Which of the following provides the most logical ordering of the sentences in paragraph 2?

(A) 7, 8, 5, 6
(B) 6, 8, 5, 7
(C) 6, 7, 8, 5
(D) 8, 7, 5, 6
(E) 7, 8, 6, 5

**37** Which of the following is the best revision of sentence 9 (reproduced below)?

*Because the Florida vote was so close, required was that a formal recount be held because of government mandate.*

(A) A government mandate having required a formal recount because the Florida vote was so close.
(B) Because the Florida vote was so close, government mandate required that a formal recount be held.
(C) Because the Florida vote was so close, requiring a formal recount be held, was a government mandate.
(D) A formal recount was required because the Florida vote was so close due to government mandate.
(E) Requiring a formal recount was a government mandate because the Florida vote was so close.

**38** Where is the best place to insert the following sentence?
*The court determined that there was not enough time to enforce a unified standard for counting the votes and therefore demanded the recount be stopped.*

(A) after sentence 8
(B) after sentence 9
(C) after sentence 12
(D) after sentence 13
(E) after sentence 14

**5**

**39** Which of the following is the best revision of sentence 13 (reproduced below) ?
*Bush ended up having won the state of Florida by a mere 537 votes.*

(A) (No revision is necessary.)
(B) Bush having won the state of Florida by a mere 537 votes.
(C) Bush did win the state of Florida by a mere 537 votes.
(D) Bush ended up the winner of the state of Florida, by a mere 537 votes.
(E) By a mere 537 votes, the winner of the state of Florida had been Bush.

**STOP**

***You may check your work, on this section only, until time is called.***

## ANSWER KEY



| Section 2 Math | Section 4 Math | Section 1 Critical Reading | Section 3 Critical Reading | Section 5 Writing |
|---|---|---|---|---|
| | | | | ☐ 1. B |
| ☐ 1. A | ☐ 21. C | ☐ 1. D | ☐ 25. C | ☐ 2. E |
| ☐ 2. C | ☐ 22. B | ☐ 2. B | ☐ 26. E | ☐ 3. A |
| ☐ 3. B | ☐ 23. E | ☐ 3. D | ☐ 27. A | ☐ 4. C |
| ☐ 4. D | ☐ 24. B | ☐ 4. B | ☐ 28. D | ☐ 5. D |
| ☐ 5. E | ☐ 25. B | ☐ 5. C | ☐ 29. A | ☐ 6. B |
| ☐ 6. D | ☐ 26. C | ☐ 6. B | ☐ 30. B | ☐ 7. A |
| ☐ 7. D | ☐ 27. C | ☐ 7. D | ☐ 31. C | ☐ 8. C |
| ☐ 8. C | ☐ 28. B | ☐ 8. C | ☐ 32. E | ☐ 9. D |
| ☐ 9. E | | ☐ 9. D | ☐ 33. B | ☐ 10. A |
| ☐ 10. D | # Right (A): _____ | ☐ 10. B | ☐ 34. A | ☐ 11. D |
| ☐ 11. B | | ☐ 11. C | ☐ 35. A | ☐ 12. E |
| ☐ 12. C | | ☐ 12. E | ☐ 36. E | ☐ 13. B |
| ☐ 13. C | # Wrong (B): _____ | ☐ 13. A | ☐ 37. D | ☐ 14. C |
| ☐ 14. C | | ☐ 14. D | ☐ 38. E | ☐ 15. D |
| ☐ 15. B | | ☐ 15. D | ☐ 39. B | ☐ 16. B |
| ☐ 16. A | # (A) $-\frac{1}{4}$ (B): _____ | ☐ 16. C | ☐ 40. C | ☐ 17. B |
| ☐ 17. B | | ☐ 17. D | ☐ 41. D | ☐ 18. A |
| ☐ 18. C | | ☐ 18. E | ☐ 42. A | ☐ 19. E |
| ☐ 19. A | ☐ 29. 8 | ☐ 19. B | ☐ 43. B | ☐ 20. B |
| ☐ 20. D | ☐ 30. 6 | ☐ 20. A | ☐ 44. C | ☐ 21. D |
| | ☐ 31. 1089 | ☐ 21. D | ☐ 45. B | ☐ 22. E |
| | ☐ 32. 120 | ☐ 22. A | ☐ 46. D | ☐ 23. B |
| | ☐ 33. 200 | ☐ 23. E | ☐ 47. C | ☐ 24. E |
| | ☐ 34. 480 | ☐ 24. B | ☐ 48. A | ☐ 25. D |
| | ☐ 35. 25 | | | ☐ 26. D |
| | ☐ 36. 4/47 | | | ☐ 27. E |
| | ☐ 37. 9 | | | ☐ 28. C |
| | ☐ 38. 7 | | | ☐ 29. A |
| | | | | ☐ 30. D |
| | | | | ☐ 31. C |
| | | | | ☐ 32. B |
| | | | | ☐ 33. B |
| | | | | ☐ 34. D |
| | | | | ☐ 35. D |
| | | | | ☐ 36. B |
| | | | | ☐ 37. B |
| | | | | ☐ 38. C |
| | | | | ☐ 39. A |
| # Right (A): _____ | # Right (A): _____ | # Right (A): _____ | # Right (A): _____ | # Right (A): _____ |
| # Wrong (B): _____ | | # Wrong (B): _____ | # Wrong (B): _____ | # Wrong (B): _____ |
| # (A) $-\frac{1}{4}$ (B): _____ | | # (A) $-\frac{1}{4}$ (B): _____ | # (A) $-\frac{1}{4}$ (B): _____ | # (A) $-\frac{1}{4}$ (B): _____ |

## SCORE CONVERSION TABLE

### How to score your test

Use the answer key on the previous page to determine your raw score on each section. Your raw score on any section is equal to the number of correct answers on that section minus 1/4 of the number of wrong answers, with the exception of the mathematical "grid-in" section, on which wrong answers are not deducted from your score. Your raw score on each section except Section 4 is simply the number of correct answers minus 1/4 of the number of wrong answers. On Section 4, your raw score is the total number of correct answers. Next, add the raw scores from Sections 2 and 4 to get your Math raw score, and add the raw scores from Sections 1 and 3 to get your Critical Reading raw score. Write the three raw scores here:

Raw Critical Reading score: _____ Raw Math score: _____ Raw Writing score: _____

5

Use the table below to convert these to scaled scores.

**Scaled scores:** Critical Reading: _____ Math: _____ Writing: _____

| Raw Score | Critical Reading Scaled Score | Math Scaled Score | Writing Scaled Score | Raw Score | Critical Reading Scaled Score | Math Scaled Score | Writing Scaled Score |
|---|---|---|---|---|---|---|---|
| 48 | 80 | | | 15 | 44 | 46 | 48 |
| 47 | 80 | | | 14 | 43 | 45 | 46 |
| 46 | 78 | | | 13 | 41 | 44 | 45 |
| 45 | 76 | | | 12 | 40 | 43 | 44 |
| 44 | 74 | | | 11 | 39 | 42 | 43 |
| 43 | 72 | | | 10 | 38 | 41 | 41 |
| 42 | 71 | | | 9 | 37 | 40 | 40 |
| 41 | 69 | | | 8 | 36 | 39 | 39 |
| 40 | 68 | | | 7 | 34 | 38 | 37 |
| 39 | 67 | | 80 | 6 | 33 | 36 | 36 |
| 38 | 66 | 80 | 80 | 5 | 32 | 35 | 35 |
| 37 | 64 | 77 | 78 | 4 | 30 | 34 | 33 |
| 36 | 63 | 74 | 77 | 3 | 29 | 32 | 32 |
| 35 | 62 | 72 | 76 | 2 | 27 | 30 | 31 |
| 34 | 62 | 71 | 74 | 1 | 25 | 29 | 30 |
| 33 | 61 | 70 | 73 | 0 | 22 | 26 | 29 |
| 32 | 60 | 68 | 71 | −1 | 20 | 24 | 28 |
| 31 | 59 | 66 | 69 | −2 | 20 | 21 | 27 |
| 30 | 58 | 64 | 68 | −3 | 20 | 20 | 25 |
| 29 | 57 | 62 | 66 | −4 | 20 | 20 | 24 |
| 28 | 56 | 61 | 65 | −5 | 20 | 20 | 21 |
| 27 | 56 | 60 | 63 | or below | 20 | 20 | 20 |
| 26 | 54 | 59 | 62 | | | | |
| 25 | 54 | 58 | 60 | | | | |
| 24 | 53 | 57 | 59 | | | | |
| 23 | 52 | 55 | 57 | | | | |
| 22 | 51 | 54 | 56 | | | | |
| 21 | 50 | 53 | 55 | | | | |
| 20 | 49 | 52 | 54 | | | | |
| 19 | 48 | 51 | 52 | | | | |
| 18 | 47 | 50 | 51 | | | | |
| 17 | 46 | 49 | 50 | | | | |
| 16 | 45 | 47 | 49 | | | | |

# Detailed Answer Key

## Section 1

1. **D** Bob Ross's *mantra* (commonly repeated word or phrase) preaches that there were *no mistakes, only happy accidents*. This indicates that one should keep a positive attitude about the painting process. In addition, the show was *an enormous success*, so people liked it. These two facts indicate that both words should be positive words. *dispirited* = disheartened; *boorish* = rude; *flippant* = lacking seriousness; *agitated* = riled up

2. **B** Parallel sentence structure hints that the word in the first blank should mean *resistant to authority* and that the word in the second blank should mean *mischievous*. *agile* = nimble, light on one's feet; *obstinate* = stubbornly defiant; *inert* = lacking motion; *infamy* = fame for bad deeds; *adamant* = stubborn and unyielding; *notoriety* = fame for bad actions; *indominable* = unable to be defeated; *scrutiny* = close examination

3. **D** She started her own lemonade business when she was young, which indicates *initiative*. Later in life she was a CEO of a pharmaceutical company, which is usually not an easy position to obtain. Given that she experienced *business success* during her lifetime it is reasonable to expect both missing words to reflect that she was a hard worker. *industrious* = hard working; *lassitude* = a lack of energy; *tenacity* = persistance; *lethargy* = tiredness; *contempt* = hatred; *pertinacity* = stubborn persistance; *diligence* = hard work; *initiative* = enterprise and determination; *swagger* (verb) = to have an overly confident expression

4. **B** The statement, *for as long as I have known her, she has otherwise always been willing to give to those less fortunate*, indicates that Amelia is a generous individual. Recently she has displayed *tightfisted* (stingy) behavior, which *belies* (misrepresents) her usual behavior. Logically, this usual behavior should relate to the *generosity* described in the second clause of the sentence. *malicious* = deliberately harmful; *munificence* = generosity; *animosity* = extreme dislike; *clairvoyance* = the ability to perceive things clearly; *mirth* = laughter

5. **C** Truman *did not mind isolation*, which indicates he liked to be alone. The isolation came from the actions of his peers, so the word in the second blank should be something that would cause Truman to be placed aside from everyone else. *pariah* = an outcast; *lionize* = treat like a celebrity; *mendicant* = a begger; *exile* = banish; *hermit* = a social outcast; *ostracize* = exclude from a group; *miscreant* = a troublemaker; *censure* = criticize publicly; *egotist* = one who is conceited

6. **B** Passage 2 indicates that the ideal of *a free and democratic society* (line 24) was not realized and was instead replaced by *bloodshed, division, domination, and reaction* (line 27). It also states that the ideals of *progress, reason, and freedom* (lines 30–31) were *a priori*, that is, were based on theory rather than experience. Finally, Passage 2 states that post-revolutionary France was *far from undertaking a scientific examination of society* (lines 32–33) as the philosophes had wished. Although Passage 2 claims that these ideals were not put into effect by the philosophes, it certainly does not suggest that these philosophes *disputed* their own ideals.

7. **D** Passage 1 states that Rousseau believed that *goodness, decency and equality . . . are the natural condition of mankind* (lines 16–18).

8. **C** These *critics* believed that the philosophes were naïve, and the main point of Passage 2 is likewise that these philosophes were ineffectual and "over-philosophizing."

9. **D** Since Rousseau was one of the *philosophes* who intended to use science as a *critical instrument* (line 5), the final sentence of Passage 2 implies that Rousseau's work was ineffectual, because the philosophes were *far from undertaking a scientific examination of society*, and instead were merely *philosophizing*. Therefore, the sentence is suggesting that Rousseau was not as rigorously scientific as he should have been.

10. **B** In saying that a story or poem can be *kept comfortably suppressed and remote* (lines 4–5), the author is saying that it can be kept from becoming *too vivid* (line 3) and that its *full effect* (line 6) can be lessened. In other words, keeping a piece of literature *remote* means keeping it at an emotional distance.

11. **C** The first paragraph discusses the distinction between literature that is read and literature that is performed on stage. While literature that is read can be kept *comfortably suppressed and remote*,

literature that is presented *on the stage* (line 11) causes the viewer to *[fall] easy victim to the illusion of reality* (lines 12–13).

12. **E** The author uses the term *nondramatic* in making the distinction between literature that is in print and literature that is performed on stage. Therefore, the author is using the term *nondramatic* to mean *nontheatrical*.

13. **A** The *moment's reflection* has the effect of dispelling *the illusion* (line 13) that the play is something real rather than a mere depiction. Therefore, the reflection necessarily concerns whether or not the events in a play are real.

14. **D** The sentence is a response to those who believe that the fact that *the . . . world of reality is full of things . . . to which literature can only point with words* (lines 63–66) is a *weak or second-best thing*. That is, the author is refuting those who believe that literature is *second best* to reality, or less salient than reality.

15. **D** The final sentence states that *it is the function of literature . . . to clarify, intensify, and extend the primary data of human experience so that our duller perceptions may be sharpened and our self-knowledge extended*. In other words, the purpose of literature is to instruct us about our world and ourselves.

16. **C** Babbit's morning is said to be filled with *a thousand nervous details* that are *interwoven* throughout the morning. This suggests a harried or hectic schedule.

17. **D** The phrase *a thousand nervous details* in this context means something like *a thousand irritating tasks and distractions*. The term *nervous* in this case is being used to mean *tending to get on one's nerves*.

18. **E** The *six ordinary shrubs* are examples of the limits of his knowledge of *landscape gardening* (line 24). The passage states that Babbitt has a *large and complacent ignorance* (lines 21–22) of such things.

19. **B** The *good advertisement* is *to speak sonorously of Unselfish Public Service* (lines 32–33) and other such moralistic principles.

20. **A** To Babbitt, it is *impractical* to *refuse to take twice the value of a house* (lines 41–42), which is to forgo an easy profit.

21. **D** The passage says that Babbitt *spoke well—and often—at these orgies of commercial righteousness*. The events at which Babbitt spoke include *Annual Banquets* (line 31) and a *Booster's Club* (line 54) meeting.

22. **A** The *engineer* in line 60 is an actual engineer who builds bridges or designs electrical work. In line 49, Babbitt is speaking of the realtor as a *prophetic engineer*, that is, one who fills the figurative role of an engineer.

23. **E** Babbitt is trying to make the point that *the realtor must know his city, inch by inch, and all its faults and virtues*, and cites the surgeon and the engineer as other examples of professionals who must have an extensive knowledge to be successful in their fields.

24. **B** One of Babbitt's *virtues as a real-estate broker* (line 9) is said to be his *diligence* (line 13), or hard work. The passage also discusses the superficiality of Babbitt's knowledge in lines 20–27, the superficiality of his morality in lines 29–38, and the superficiality of his civic concern in the final paragraph.

## Section 2

1. **A** $\dfrac{3x+y}{11}$

Substitute for $x$ and $y$:

$$\frac{3(7)+12}{11}=\frac{21+12}{11}=\frac{33}{11}=3$$

(Chapter 9 Lesson 1: Solving Equations)

2. **C** There are 180° on one side of a line:

$$94+y=180$$

Subtract 94: $y=86$

There are 180° in a triangle: $86+31+x=180$

Combine terms: $117+x=180$

Subtract 117: $x=63$

(Chapter 11 Lesson 1: Lines and Angles)
(Chapter 11 Lesson 2: Triangles)

3. **B** This question asks you to find the 1996 price of gasoline, which is 20% greater than the 1988 price.

$$p_{1986}=p_{1988}+(0.20)(p_{1988})$$

Substitute: $p_{1996}=\$1.25+(0.20)(\$1.25)$

Combine: $p_{1996}=\$1.25+\$0.25=\$1.50$

(Chapter 8 Lesson 5: Percents)

4. **D** The value of $y$ after the line segment is rotated 15° counterclockwise is 45°. The rotation has made the angle 15° smaller than it was. It was therefore

originally $45^\circ + 15^\circ = 60^\circ$. There are $180^\circ$ in a line, so

$$x + y = 180$$
Substitute for $y$: $x + 60 = 180$
Subtract 60: $x = 120$

(Chapter 11 Lesson 1: Lines and Angles)

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5. **E** The container contains 6 gallons of water. Since there are 4 pints in 1 gallon, there are $6 \times 4 = 24$ pints in the container. Since there are 2 cups in 1 pint, there are $24 \times 2 = 48$ cups in the container. If 6 cups are poured out, this means that there are $48 - 6 = 42$ remaining of the original 48 cups. $\frac{42}{48} = \frac{7}{8}$

(Chapter 8 Lesson 4: Ratios and Proportions)

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6. **D** To find the perimeter, first find the length of each side of the triangle. The two legs are easy: the one along the $x$-axis is 3, and the one along the $y$-axis is 4. The hypotenuse is a bit more complex, and you need to use the Pythagorean theorem to find its length:

$$a^2 + b^2 = c^2$$
Substitute: $3^2 + 4^2 = c^2$
Combine: $25 = c^2$
Take square root: $c = 5$

To find the perimeter, add the three sides: $3 + 4 + 5 = 12$.

(Chapter 11 Lesson 5: Areas and Perimeters)

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7. **D** When $b$ is quadrupled, it becomes $4b$. Three times the value of $p$ is $3p$. When $4b$ is subtracted from $3p$, the difference is $(3p - 4b)$. When that difference is subtracted from $y$, the result is:

$$y - (3p - 4b)$$
Distribute: $y - 3p + 4b$

(Chapter 9 Lesson 1: Solving Equations)

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8. **C** The quickest way to solve this problem is to come up with an example for $p$ that fits the rules in the problem. When $p$ is divided by 5, the remainder is 4. Let's say that $p = 9$.

$9 \div 5 = 1$ remainder 4

To find the remainder when $p + 3$ is divided by 5, substitute in your value for $p$ and solve.

$$p + 3 = 9 + 3 = 12$$

What is the remainder when 12 is divided by 5?

$$12 \div 5 = 2^{R2}$$

(Chapter 10 Lesson 3: Numerical Reasoning Problems)

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9. **E** Use the fundamental counting principle to solve this problem. $4 \times 3 \times 6 \times 2 = 144$

(Chapter 10 Lesson 5: Counting Problems)

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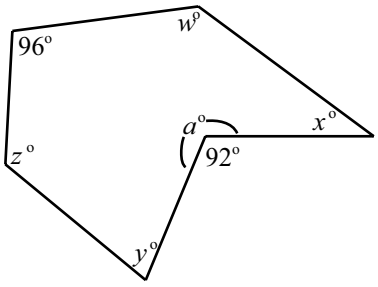
10. **D** The figure in the diagram has 6 sides. So the sum of the angles must be $(6 - 2)180^\circ = 4(180^\circ) = 720$




There are $360^\circ$ in a circle: $a + 92 = 360$
Subtract 94: $a = 268$
There are $720^\circ$ in a hexagon (6 sides), so:

$$y + a + z + 96 + w + x = 720$$
Substitute for $a$: $y + 268 + z + 96 + w + x = 720$
Combine like terms: $y + 364 + z + w + x = 720$
Subtract 364: $y + z + w + x = 356$
Divide by 4: $\frac{y + z + w + x}{4} = 89$

(Chapter 11 Lesson 2: Triangles)

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11. **B**

$$a^3 + b^3 = 26$$
Stack and add: $+a^3 - b^3 = 28$
$$2a^3 = 54$$
Divide by 2: $a^3 = 27$
Take cube root: $a = 3$

(Chapter 9 Lesson 2: Systems)

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12. **C** Consider the side of length 6 to be the base, and "attach" the side of length 12. Notice that the triangle has the greatest possible height when the two sides form a right angle. Therefore the greatest possible area of such a triangle is $\frac{1}{2}(6)(10) = 30$, and the minimum possible area is 0. Roman numerals I and II are possible.

(Chapter 11 Lesson 2: Triangles)

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13. **C** You are told that $(6 \text{ ¤ } 3) \square (4 \square 2) = 12 \text{ ¤ } 2$ and asked to find the value of $(4 \text{ ¤ } 3) \square 6$. First you have to figure out what ¤ and $\square$ represent. This will rely on some trial and error: Let's say the ¤ symbol represents a minus sign:

$$(6 \text{ ¤ } 3) \square (4 \square 2) = 12 \text{ ¤ } 2$$
Substitute $-$ for ¤: $(6 - 3) \square (4 \square 2) = (12 - 2)$
Simplify: $3 \square (4 \square 2) = 10$
If $\square = +$: $3 + (4 + 2) = 9 \neq 10$
If $\square = \div$: $3 \div (4 \div 2) = 1.5 \neq 10$
If $\square = \times$: $3 \times (4 \times 2) = 24 \neq 10$

So, ¤ $\neq$ $-$

Let's say the ¤ symbol represents a multiplication sign.

| | |
|---|---|
| Substitute × for ¤: | $(6 \times 3) \square (4 \square 2) = (12 \times 2)$ |
| Simplify: | $18 \square (4 \square 2) = 24$ |
| If $\square = +$: | $18 + (4 + 2) = 24$ |
| If $\square = \div$ : | $18 \div (4 \div 2) = 9 \neq 24$ |
| If $\square = -$: | $18 - (4 - 2) = 16 \neq 24$ |

Now that we know that ¤ = × and □ = +, we must find the value of: $(4 \text{ ¤ } 3) \square 6$

| | |
|---|---|
| Substitute for ¤ and □: | $(4 \times 3) + 6$ |
| Simplify: | $12 + 6 = 18$ |

(Chapter 10 Lesson 1: New Symbol and Term Problems)

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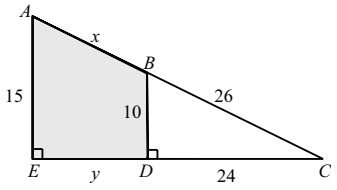
14. **C** This question tests your understanding of similar triangles. (Because the triangles are both right triangles and they share angle *C*, they are similar because this means the three different angles of the two triangles are the same.)
First find the length of *DC* using the Pythagorean theorem.

| | |
|---|---|
| | $(DC)^2 + (BD)^2 = (BC)^2$ |
| Substitute: | $(DC)^2 + (10)^2 = (26)^2$ |
| Simplify: | $(DC)^2 + 100 = 676$ |
| Subtract 100: | $(DC)^2 = 576$ |
| Take the square root: | $DC = 24$ |

You must set up ratios to solve this question.

$$\frac{BD}{AE} = \frac{DC}{EC} = \frac{BC}{AC}$$

To solve this problem, you need to find the values of *AB* and *ED*.




Plug in the known values and solve: $\frac{10}{15} = \frac{26}{26 + x}$

| | |
|---|---|
| Cross-multiply: | $10(26 + x) = 15(26)$ |
| Distribute: | $260 + 10x = 390$ |
| Subtract 260: | $10x = 130$ |
| Divide by 10: | $x = 13$ |

Plug in the known values and solve: $\frac{10}{15} = \frac{24}{24 + y}$

| | |
|---|---|
| Cross-multiply: | $10(24 + y) = 15(24)$ |
| Distribute: | $240 + 10y = 360$ |
| Subtract 240: | $10y = 120$ |
| Divide by 10: | $y = 12$ |

Now, find the perimeter of the shaded region:
$13 + 15 + 10 + 12 = 50$
(Chapter 11 Lesson 6: Similar Figures)

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15. **B**

| | |
|---|---|
| | $y^2 + by + c = 0$ |
| Substitute 4 for *y*: | $4^2 + b(4) + c = 0$ |
| Simplify: | $16 + 4b + c = 0$ |
| Substitute −3 for *y*: | $(-3)^2 + -3b + c = 0$ |
| Simplify: | $9 - 3b + c = 0$ |
| Stack and subtract: | $\underline{16 + 4b + c = 0}$ |
| | $-7 - 7b = 0$ |
| Add $7b$: | $-7 = 7b$ |
| Divide by 7: | $-1 = b$ |

Alternatively: If $y = 4$ and $y = -3$ are solutions, then it follows that $(y - 4)(y + 3) = 0$

| | |
|---|---|
| FOIL: | $y^2 + 3y - 4y - 12 = 0$ |
| Combine like terms: | $y^2 - y - 12 = 0$ |
| Compare to original: | $y^2 + by + c = 0$ |

Therefore, $b = -1$ and $c = -12$
(Chapter 9 Lesson 1: Solving Equations)

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16. **A** Set up equations to represent the information:

There are twice as many red jellybeans as orange jellybeans: $r = 2o$

There are three times as many orange jellybeans as yellow jellybeans: $o = 3y$

There are four times as many yellow jellybeans as green jellybeans: $y = 4g$

Of all the colors, green is the least common, so start by assuming you have just one green jellybean. If there is 1 green, there are $4(1) = 4$ yellows; there are $3(4) = 12$ oranges; there are $2(12) = 24$ reds. If there is 1 green jellybean, there are $1 + 4 + 12 + 24 = 41$ jellybeans. The probability that you pick a yellow jellybean, choosing at random, is 4 out of 41 jellybeans.

Alternatively, this can be solved by assuming you have *x* green jellybeans. This means you would have $4(x) = 4x$ yellow jellybeans. You would have $3(4x) = 12x$ orange jellybeans, and $2(12x) = 24x$ red

jellybeans. There would be a total of $x + 4x + 12x + 24x = 41x$ jellybeans, of which $4x$ are yellow. Thus the probability is $4x$ out of $41x$.
(Chapter 10 Lesson 6: Probability Problems)

17. **B** The regular price of the pair of sneakers is $s$ dollars. First find out how much it costs when it is 20% off by subtracting $0.20s$ from $s$: $s - 0.20s = 0.80s$
Next, find out how much it costs after the 15% frequent buyer discount: What is 15% of $0.80s$?

$$x = 0.15(0.80s)$$

Simplify: $x = 0.12s$

Now, subtract $0.12s$ from $0.80s$ to obtain the final sale price: $0.80s - 0.12s = 0.68s$
Alternatively, you can skip a step by realizing that if something is reduced by 15%, it is 85% of the original.
Again begin by first finding out how much it costs when it is 20% off by subtracting $0.20s$ from $s$:
$s - 0.20s = 0.80s$
Now, instead, find 85% of $0.80s$: $0.85(0.80s) = 0.68s$
(Chapter 8 Lesson 5: Percents)

18. **C** It took Nguyen $t$ hours to get to the football game. Given that he was one hour late, he would have liked the trip to have taken $t - 1$ hours. Find the speed it would take him to go $d$ miles in $t - 1$ hours:

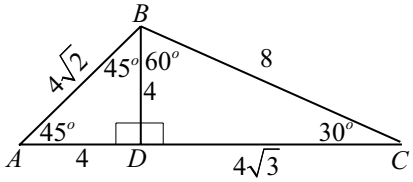
$$d = (\text{rate})(\text{time})$$

Substitute: $d = (\text{rate})(t - 1)$

Divide by $t - 1$: $\dfrac{d}{t-1} = \text{rate}$

(Chapter 10 Lesson 4: Rate Problems)

19. **A** If $AD = DB$, then $\angle BAD = \angle ABD = 45^\circ$ because triangle $ABD$ is therefore an isosceles right triangle. Since $ADB$ is a $45^\circ$-$45^\circ$-$90^\circ$ triangle, $AD = DB = 4$ (because the sides of a $45^\circ$-$45^\circ$-$90^\circ$ triangle are in the ratio of $x$-$x$-$x\sqrt{2}$). Triangle $BDC$ is a $30^\circ$-$60^\circ$-$90^\circ$ triangle, and the sides can be filled using the fact that the sides of a $30^\circ$-$60^\circ$-$90^\circ$ triangle are in the ratio of $x$-$x\sqrt{3}$-$2x$).




Set up equation for area: $A = \dfrac{1}{2}(\text{base})(\text{height})$

Substitute: $A = \dfrac{1}{2}(4 + 4\sqrt{3})(4)$

Simplify: $A = 8 + 8\sqrt{3}$

(Chapter 11 Lesson 2: Triangles)

20. **D** $5^{3c}$ raised to the third power is equal to $5^{9c}$.

Substitute $(5^{3c})^3$ for $5^{9c}$: $5^{9c} = (5^{3c})^3$
Substitute $5^{(a+b)}$ for $5^{3c}$: $5^{9c} = (5^{(a+b)})^3$

The laws of exponents tell us that $(5^x)^y$ is the same as $(5^y)^x$.

Rearrange exponents: $(5^{(a+b)})^3 = 5^{3(a+b)}$
Rearrange exponents: $5^{3(a+b)} = (5^3)^{(a+b)}$
Simplify: $(5^3)^{(a+b)} = 125^{a+b}$

(Chapter 9 Lesson 3: Working with Exponents)

## Section 3

25. **C** Start with the second half of this sentence. The decision ruled that *segregation ... was unequal* and that such behavior *should be eliminated.* The word in the second blank, which describes that behavior, should relate to *segregation* (the policy or practice of separating people of different races, classes, or ethnic groups). It follows logically that if the decision eliminated segregation, it would be a step toward *equality*. *inequity* = inequality; *bigotry* = intolerance; *disparity* = inequality; *revelation* = a sudden realization

26. **E** Douglas Adams is remembered for his ability to *craft humorous and insightful parody*, and he was a master of this skill. The missing word should be a word that describes a literary work that is a humorous parody. *atrocity* = something horrible; *candor* =

honesty; *satire* = a literary work of irony or humor; a parody

27. **A** The National Guard was probably called in to *stop* or *prevent* the antiwar protests that took place at Kent State University. *suppress* = prohibit, put an end to; *revere* = worship; *mortify* = embarrass; *berate* = criticize harshly; *cultivate* = grow

28. **D** Normally, children will begin to develop usable speech between the ages of 1 and 3. The sentence tells us that children with autism develop usable speech at the age of 5, which is much later than normal. Their language development is *delayed*. *prudent* = using good judgment; *ruthless* = lacking compassion; *arrested* = held back; *expedite* = speed up the progress of

29. **A** Those who are blind rely on their *sense of smell [to provide] them with … impressions of their surrounding environment*. The word should be one that describes the *sense of smell*. *olfaction* = sense of smell; *abstinence* = the act of refraining from activity; *pungent* = sharp taste or odor; *gustation* = sense of taste; *mastication* = chewing

30. **B** The hospital's *chief of staff … invented and perfected a surgical procedure* used nationwide, which indicates he must be quite skilled. He accidently left a clamp in one of his patients, which is a pretty large mistake to make. This shows that even the most *skilled* surgeon is *able to make mistakes*. *inept* = lacking skill; *preeminent* = outstanding; *adept* = highly skilled; *fallible* = capable of making mistakes; *recalcitrant* = hesitant to obey; *malleable* = able to be bent; *deft* = skilled; *unerring* = committing no mistakes; *tactile* = relating to the sense of touch; *apprehensive* = hesitant

31. **C** Manolis always has an umbrella with him when it rains, even when there is no sign of rain. The sentence suggests that if it is not luck, then he must know the rain is coming. So he either is lucky or *knows the future*. *pugnacious* = belligerent, ready to fight; *humility* = the condition of being humble; *prescience* = foresight; *magnanimity* = generosity; *avarice* = greed

32. **E** Thomas Paine's pamphlet served as *an inspiration for the colonists*. It can be inferred that his pamphlet *Common Sense supported* the freedom from the British. This support for the colonist's cause would make Thomas Paine a *catalyst* for the American Revolution because he helped push it along by inspiring the colonists. *impetus* = an impelling force, something that incites; *disparage* = belittle, put down; *nihilist* = one who rejects moral distinctions and "knowable" truths; *vindicate* = clear of wrong doing or blame; *abomination* = disgust; *debunk* = to expose as false; *harbinger* = a sign of things to come; *denigrate* = belittle or put down; *catalyst* = a substance or person that causes an event to occur; *champion* = support or fight for

33. **B** Lines 1–2 state that *a physical law is a statement of the way in which matter behaves*. The passage states that we *have no control* over physical laws. Answer choice (B), does not make a claim about the behavior of physical quantities and thus does not fit the given definition of a physical law.

34. **A** Lines 13–17 state that *Aristotle believed that he had discovered a law of nature … In fact, he had not discovered a law of physics*. This is an example of flawed thinking

35. **A** The passage begins by identifying a problem: it is difficult to define the term *language*, and this makes it hard to understand the role of language in constructing gender divisions.

36. **E** The passage states that *people have less privileged access to many of their own mental processes*, which is *perhaps … one reason why there are many popular misconceptions* (lines 17–21). Therefore statement II is correct because this suggests an inability to examine one's own thought. The passage also mentions that *it is all too easy to talk about language in ways which make it appear a complex, mysterious and paradoxical thing which is beyond the understanding of non-specialists* (lines 25–29) Statement III is correct because this suggests a tendency to mystify language. Statement I is not directly mentioned. Both statements II and III are correct.

37. **D** The passage states that Neanderthal Man, *for all that we know, [is] not older than homo sapiens* (lines 8–9). In other words, we are uncertain of the relative age of Neanderthal Man and *homo sapiens*.

38. **E** In saying that *scavenging wild animals [were not] held in honor* (lines 27–28), the author means that they were not *regarded with* honor.

39. **B** The passage states that *these elements were thought to be defiled and dishonored by contact with a human corpse* (lines 29–31), thereby suggesting that these elements were held in even higher esteem than the human body.

40. **C** The phrase *with their minds* (lines 41–42) contrasts the phrase *in practice* (lines 46–47) in the next sentence to contrast what *present-day people* (line 41) believe with what they actually do.

41. **D** The central idea of Passage 2 is that primitive humans devised death rituals *to enact some type of truce* with the spirit world, which they feared. If some tribes actually devised rites to signify human dominance over the spirit world, this fact would directly contradict the idea that humans feared spirits and gods.

42. **A** Passage 2 states that primitive man *eventually attributed many life events to his instinctive knowledge of a higher being or power* (lines 54–56). The word *eventually* in this context indicates that primitive man did not always make this attribution.

43. **B** The *defilement* mentioned in line 77 is a defilement of *mother earth* due to the *burial* of a human body, which is what is also discussed in lines 25–31 of Passage 1.

44. **C** This paragraph discusses those funerary practices that are used to prevent evil spirits from *hovering* (line 92) or *attacking* (line 95) and to drive away spirits that have already *invaded* (line 99). These terms suggest the *malevolence* of the spirit world.

45. **B** The Calatians and Queen Artemisia consumed their dead, a practice which is not discussed in Passage 1. The Zoroastrians, on the other hand, left their dead to scavengers, which is a practice discussed in lines 21–31 of Passage 1.

46. **D** Passage 1 states that *funerary rites are ... intended to express reverence for the person who has died* (lines 11–13) and that the *common signification* (line 33) of funerary rites is *that a human being has a dignity in virtue of his being human* (lines 34–35). Passage 2 states, on the other hand, that *ceremonies and rituals* (line 62) regarding death were contrived *to enact some kind of truce* (line 60) with the spirit world which early humans feared and to *protect the living from the spirits which caused the death of the person* (lines 67–68).

47. **C** Both passages indicate that fire is integral to some rituals, such as *pyres* (line 23) discussed in Passage 1 and the *burning of bodies* (lines 69) and the *ring of fire* (line 93) discussed in Passage 2, but also that it is forbidden in other rituals because *fire ...[was] thought to be defiled and dishonored by contact with a human corpse* (lines 28–31) and because *fire [is] too sacred to be put to use disposing of the dead* (lines 75–76).

48. **A** Passage 2 does not mention Neanderthal Man at all, but both passages discuss *reverence for natural elements* (lines 28–31 in Passage 1 and lines 74–77 in Passage 2), *scavengers* (line 27 in Passage 1 and lines 74 and 78–82 in Passage 2), *human awe of death* (lines 14–15 in Passage 1 and lines 56–59 in Passage 2), and *burial customs* (lines 21–23 in Passage 1 and lines 66–68 and 76–77 in Passage 2).

## Section 4

21. **C** If a square has an area of 49 square inches, then each side of the square must be 7 inches.

$$\text{Area of square} = (\text{side})^2$$
Substitute: $49 = (\text{side})^2$
Take the square root: $7 = \text{side}$

The perimeter of a square can be found by multiplying the side length by 4. $7 \times 4 = 28$
(Chapter 11 Lesson 5: Areas and Perimeters)

22. **B**

$p^* = p^2$, when $p$ is an odd integer
$p^* = 2p$, when $p$ is an even integer
$p^* = p^2$, when $p$ is odd.

First find the value of $(3^* + 1^*)$: $3^* = 3^2 = 9$
$1^* = 1^2 = 1$
Substitute: $(3^* + 1^*) = (9 + 1) = 10$
Next find the value of $(10)^* = 2(10) = 20$
(Chapter 10 Lesson 1: New Symbol or Term Problems)

23. **E** $x + (x + 2) + (x + 4) = 66$

Combine like terms: $3x + 6 = 66$

Subtract 6: $3x = 60$

Divide by 3: $x = 20$

The three integers are $x$, $x + 2$, and $x + 4$. They are therefore 20, 22, and 24.

If you answered 23, you forgot they needed to be *even*.

(Chapter 9 Lesson 1: Solving Equations)

24. **B**

POLITICAL PARTY MEMBERSHIP

| | Men | Women | Total |
|---|---|---|---|
| Democrat | 320 | | 600 |
| Republican | 197 | | |
| Independent | 38 | | 105 |
| Total | 555 | 645 | 1,200 |

There are 1,200 total people, of which 645 are women. Therefore, $1{,}200 - 645 = 555$ are men. Of these men, 38 are independent and 320 are Democrats. Therefore $555 - 38 - 320 = 197$ are Republicans.

(Chapter 10 Lesson 8: Data Analysis)

25. **B** Begin by looking at the far-right column. $X + Y = 9$. The middle column tells us the same information, and the far-left column tells us that $3 + 2 = Y$.

Therefore $Y = 5$ and $X = 9 - 5 = 4$.

(Chapter 10 Lesson 3: Numerical Reasoning Problems)

26. **C** Try a few positive odd integers for $x$ and see if there is a pattern:

$x = 1 \quad (4^1)^2 = 4^2 = 16$

$x = 3 \quad (4^3)^2 = 64^2 = 4{,}096$

$x = 5 \quad (4^5)^2 = 1{,}024^2 = 10{,}48{,}576$

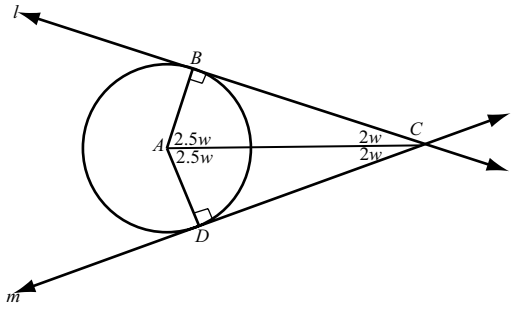
They all end in 6.

(Chapter 10 Lesson 7: Sequences)

27. **C** Let's say you have 10 gallons of each type of gelatin. In 10 gallons of citrus gelatin there are 4 gallons $(2/5 \times 10 = 4)$ of orange-flavored gelatin and 6 gallons $(3/5 \times 10 = 6)$ of lemon-flavored gelatin. In 10 gallons of sour gelatin there are 7 gallons $(7/10 \times 10 = 7)$ of lemon gelatin and 3 gallons $(3/10 \times 10 = 3)$ of lime gelatin. Therefore in 20 gallons of a mixture, there are 13 gallons of lemon gelatin, or 13/20.

(Chapter 8 Lesson 4: Ratios and Proportions)

28. **B**




At points of tangency, right angles are formed, so we have two identical right triangles in the figure. If you draw the hypotenuse from point $A$ to point $C$, you break the angles into angles measuring $2.5w$ and $2w$. There are $180^\circ$ in a triangle, so $2.5w + 2w + 90 = 180$

Combine like terms: $4.5w + 90 = 180$

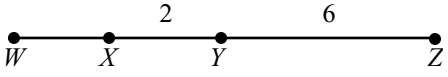
Subtract 90: $4.5w = 90$

Divide by 4.5: $w = 20$

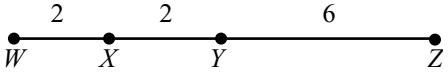
(Chapter 11 Lesson 8: Circles)

(Chapter 11 Lesson 2: Triangles)

29. **8** Since $XY = \frac{1}{3}(YZ)$, if $XY = 2$, then $YZ = 3(2) = 6$.




If $WX$ is half of $WY$, then $XY$ must also be equal to one-half of $WY$. Therefore $WX = XY = 2$.




As a result, $XZ = 8$.

(Chapter 10 Lesson 3: Numerical Reasoning Problems)

30. **6** $r$ and $s$ must be positive integers. Use trial and error to plug in numbers and find out how many pairs will work given the rules of the question.

$4r + 5s < 30$

$r = 1 \quad 4(1) + 5s < 30$

Subtract 4: $5s < 26$

$s$ could be 2, 3, 4, or 5

$r = 2 \quad 4(2) + 5s < 30$

Subtract 8: $5s < 22$

| | |
|---|---|
| $s$ could be 3 or 4 | |
| $r = 3$ | $4(3) + 5s < 30$ |
| Subtract 12: | $5s < 18$ |

Since $s$ must be greater than $r$, there are no values possible when $r > 2$.
Therefore there are 6 possible integer pairs ($r$, $s$).
(Chapter 10 Lesson 3: Numerical Reasoning Problems)

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31. **1089** When solving this problem, remember that you cannot repeat digits.
The smallest possible three-digit integer: 102
The largest possible three-digit integer: 987

$$987 + 102 = 1{,}089$$

Don't forget that 0 is a digit, but it can't be the first digit of a three-digit integer.
(Chapter 10 Lesson 3: Numerical Reasoning Problems)

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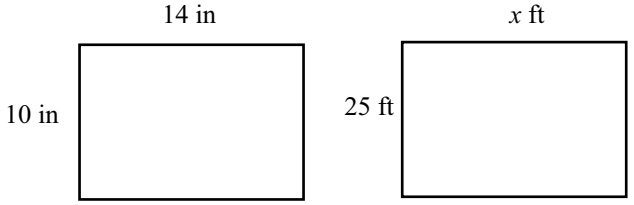
32. **120**




The shorter side of the garden measures 25 feet in length and is represented on the map as 10 inches. The longer side of the garden would be represented by the 14-inch side on the map.

| | |
|---|---|
| Set up a proportion: | $\frac{10 \text{ inches}}{25 \text{ feet}} = \frac{14 \text{ inches}}{x \text{ feet}}$ |
| Cross-multiply: | $10x = 350$ |
| Divide by 10: | $x = 35$ |

To find the perimeter, add up all the sides:

$$35 + 25 + 35 + 25 = 120$$

(Chapter 11 Lesson 5: Areas and Perimeters)
(Chapter 8 Lesson 4: Ratios and Proportions)

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33. **200** The ratio is a "ratio of parts" with a sum of $1 + 2 + 4 + 6 = 13$. The second largest part, then, is 4/13 of the whole. 4/13 of \$650 = \$200
(Chapter 8 Lesson 4: Ratios and Proportions)

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34. **480** To answer this question you can find the area of each tile and then the area of the entire floor to be covered. The floor is $12 \times 15 = 180$ square feet. Each tile is made up of a 6- by 6-inch square attached to a 45°-45°-90° triangle. Convert the inches into feet.

$$6 \text{ inches} \times \frac{1 \text{ foot}}{12 \text{ inches}} = 0.5 \text{ foot}$$

The tile consists of a 0.5-ft by 0.5-ft square that has an area of $(0.5)(0.5) = 0.25$ square foot and a triangle with an area of $\frac{1}{2}(0.5 \text{ ft})(0.5 \text{ ft}) = 0.125$ square foot. The total area of the tile is $0.25 + 0.125 = 0.375$ square foot. To find out how many tiles you need, divide the total area of the floor by the area of each tile.

$$180 \div 0.375 = 480 \text{ tiles}$$

(Chapter 11 Lesson 5: Areas and Perimeters)

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35. **25** If you have the time, you could solve this problem by actually adding up all of the even integers less than or equal to 50 and all of the odd integers less than 50 and then subtracting the two sums. But it is simpler to write out the equation as it is written below. In doing so you will find that there are 25 even numbers and 25 odd numbers, and each even number is 1 more than one of the odd numbers (e.g., 2 is 1 more than 1, 4 is 1 more than 3, 6 is 1 more than 5, etc.). Therefore the sum of the even numbers is $25(1) = 25$ more than the sum of the odd numbers.

$$\begin{array}{r} 2+4+6+8+\cdots+44+46+48+50 \\ \underline{-1+3+5+7+\cdots+43+45+47+49} \\ 1+1+1+1+\cdots+1+1+1+1 = 25 \end{array}$$

(Chapter 10 Lesson 3: Numerical Reasoning Problems)

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36. **4/27** Each student can write either 1, 2, or 3 on the card. Using the fundamental counting principle, you can calculate how many different permutations of cards are possible: $3 \times 3 \times 3 = 27$
Next, find out how many permutations would provide a sum greater than 7. To get a sum larger than 7, the cards must be either 3, 3, and 3 or 3, 3, and 2. There is only *one* way to get 3, 3, and 3—all three students write a 3 on the card. There are *three* ways to get the 3, 3, 2 permutation. Student 1 could write the two, student 2 could write the two, or student 3 could write the two. There are *four* ways to get a sum larger than 7, or 4 out of 27 possible permutations.
(Chapter 10 Lesson 5: Counting Problems)

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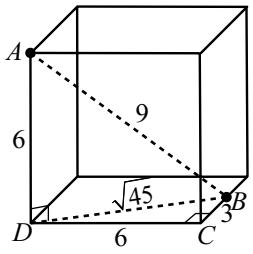
37. **9** The volume of the cube is 216, so each edge has length 6.

| | |
|---|---|
| Volume $= x^3 = 216$ | |
| Take cube root: | $x = 6$ |

To solve this problem you need to construct right triangles and use the Pythagorean theorem.




Find the value of $DB$: $3^2 + 6^2 = (DB)^2$
Combine like terms: $45 = (DB)^2$
Take the square root: $\sqrt{45} = DB$
Find the value of $AB$: $(\sqrt{45})^2 + 6^2 = (AB)^2$
Combine like terms: $81 = (AB)^2$
Take the square root: $9 = AB$
(Chapter 11 Lesson 7: Volumes and 3-D Geometry)
(Chapter 11 Lesson 3: The Pythagorean Theorem)

38. **7** We are told that $m \square n$ = the sum of all of the common factors of $m$ and $n$. To solve this question, first find out the value of (24 □ 36):

Factors of 24: **1**, **2**, **3**, **4**, **6**, 8, **12**, 24
Factors of 36: **1**, **2**, **3**, **4**, **6**, 9, **12**, 18, 36

Therefore $(24 \square 36) = 1 + 2 + 3 + 4 + 6 + 12 = 28$

Next, find out the value of (33 □ 44):

Factors of 33: **1**, 3, **11**, 33

Factors of 44: **1**, 2, 4, **11**, 22, 44

Therefore $(33 \square 44) = 1 + 11 = 12$

Finally, find out the value of (28 □ 12):

Factors of 28: **1**, **2**, **4**, 7, 14, 28

Factors of 12: **1**, **2**, 3, **4**, 6, 12

Therefore $(28 \square 12) = 1 + 2 + 4 = 7$
(Chapter 10 Lesson 1: New Symbol or Term Problems)

## Section 5

1. **B** This is an awkward usage of the gerund *organizing*. To convey purpose the infinitive *to organize* is much more effective.
(Chapter 13 Lesson 3: Parallelism)

2. **E** The original phrasing is a sentence fragment. Answer choices (B) and (D) are incorrect because semicolons must separate independent clauses.
(Chapter 13 Lesson 15: Coordinating Ideas)

3. **A** This sentence is correct as written.

4. **C** The use of *instead* in the original phrasing is illogical, because the ideas in the sentence are related as a cause and effect. The use of *indeed* in (C) conveys the appropriate meaning.
(Chapter 13 Lesson 15: Coordinating Ideas)

5. **D** The original participial phrase incorrectly modifies *the labor movement*, not the *Reverend Jesse Jackson*, so the original phrasing leaves a dangling participle.
(Chapter 13 Lesson 12: Other Problems with Modifiers)

6. **B** Choice (B) best follows the law of parallelism.
(Chapter 13 Lesson 3: Parallelism)

7. **D** The use of the passive voice in the original phrasing does not make it clear who is remembering. Choice (D) is the only one that uses the proper tense and voice to convey the idea clearly.

8. **C** When *one* is used as a subject in the beginning of a sentence, it is improper to then use *you* later on in that same sentence to refer to the same subject. Be consistent with any pronouns you use to refer to the same thing more than once in a sentence. Choice (C) corrects this mistake.
(Chapter 13 Lesson 5: Pronoun Agreement)

9. **D** The use of the passive voice in the original phrasing does not make it clear who is remembering. Choice (D) is the only one that uses the proper tense and voice to convey the idea clearly.

10. **A** This sentence is correct as written.

11. **D** The subject of the verb is *choice*, which is singular. The verb *come* should instead be *comes*.
(Chapter 13 Lesson 1: Subject-Verb Disagreement)

12. **E** The original phrasing is awkward: *prolonged, which made him*. The *which* has no antecedent. Choice (E) corrects the error in the most clear and concise manner.
(Chapter 13 Lesson 15: Coordinating Ideas)
(Chapter 13 Lesson 5: Pronoun Agreement)

13. **B** This is an illogical comparison. The national debt of the current administration should be

compared with *the national debt* of the previous administration. Choice (B) makes this correction.
(Chapter 13 Lesson 4: Comparison Errors)

14. **C** The original sentence construction lacks sequential clarity. The phrase *already spoke* should instead be *had been speaking*.
(Chapter 13 Lesson 13: Irregular Verbs)

15. **D** Use *between* when comparing exactly two things and *among* when comparing more than two things.
(Chapter 13 Lesson 4: Comparison Errors)

16. **B** The participial phrase should modify Paul Cezanne, not his artwork or influence.
(Chapter 13 Lesson 12: Other Problems with Modifiers)

17. **B** The phrase should have *neither . . . nor* parallel structure. Choice (B) is the most parallel.
(Chapter 13 Lesson 3: Parallelism)

18. **A** The sentence is correct as written.

19. **E** This is a sentence fragment that lacks a verb. Answer choice (E) best corrects the error while maintaining the same meaning of the original sentence
(Chapter 13 Lesson 15: Coordinating Ideas)

20. **B** Since the subject of the sentence is *quality*, which is singular, the correct form of the verb is *has*.
(Chapter 13 Lesson 1: Subject-Verb Disagreement)

21. **D** The past participle of *to run* is *run* instead of *ran*. It should be replaced by *has run*.
(Chapter 13 Lesson 13: Irregular Verbs)

22. **E** The sentence is correct.

23. **B** To *except* something is to *exclude it*. To *accept* something means *to agree to take it*. This is a diction error. It should be *was accepted*.
(Chapter 13 Lesson 11: Diction Errors)

24. **E** The sentence is correct.

25. **D** The pronoun *his* is ambiguous. Is it referring to Paul or Richard? The way the sentence is constructed, it is impossible to tell.
(Chapter 13 Lesson 5: Pronoun Agreement)

26. **D** When using a semicolon to join two closely related independent clauses, the clauses must be *independent*. In order for the second clause to be independent, *winning* should be changed to *he won*.
(Chapter 13 Lesson 15: Coordinating Ideas)

27. **E** The sentence is correct.

28. **C** Although the *team* was *skillful*, the modifier in the sentence is intended to answer the question *how did they play?* Since, in that case, it is modifying a verb, it should take the *-ly* (adverb) form: *skillfully*.
(Chapter 13 Lesson 12: Other Problems with Modifiers)

29. **A** Use *who* to describe a person. *Who* should be replaced with *which*.
(Chapter 13 Lesson 5: Pronoun Agreement)

30. **D** Because Maria wrote in her diary *after* she had gone to the amusement park, the verb should be *she had done*.
(Chapter 13 Lesson 9: Tricky Tenses)

31. **C** The phrase *along with* indicates that a comparison is being made. However, in this sentence, Upton Sinclair is being compared with the novels of George Orwell rather than with Orwell himself. The sentence should begin, *Along with the works of Upton Sinclair*.
(Chapter 13 Lesson 4: Comparison Errors)

32. **B** The phrase *to go* is redundant. If there are seconds remaining on the clock, it is clear that there are seconds to go.
(Chapter 13 Lesson 12: Other Problems with Modifiers)

33. **B** When someone is *ambivalent*, she has conflicting opinions about something. When something is *ambiguous*, it is unclear. This is a diction error, and *ambivalent* should be replaced by *ambiguous*.
(Chapter 13 Lesson 11: Diction Errors)

34. **D** Because the non-underlined verb, *succeeded*, is in the past tense, *serving* should instead be *served*. This creates parallel sentence structure.
(Chapter 13 Lesson 3: Parallelism)

35. **D** Choice (D) is the most logical, consistent, and concise.
(Chapter 13 Lesson 15: Coordinating Ideas)

36. **B** This order places the sentences in proper logical and chronological order. (6) indicates there was controversy during the election, (8) focuses in on the state of Florida and its involvement in the controversy, (5) discusses that Florida was given to Gore before the polls closed, and (7) reveals that this was a mistake because Florida was too close to call
(Chapter 13 Lesson 15: Coordinating Ideas)

37. **B** The original sentence is awkwardly constructed. Answer choice (B) conveys all the important information in a clear and concise manner.
(Chapter 13 Lesson 15: Coordinating Ideas)

38. **C** This sentence serves as a nice conclusion to the third paragraph because it provides further detail about why the recount was halted.
(Chapter 13 Lesson 15: Coordinating Ideas)

39. **A** The sentence is correct as written.